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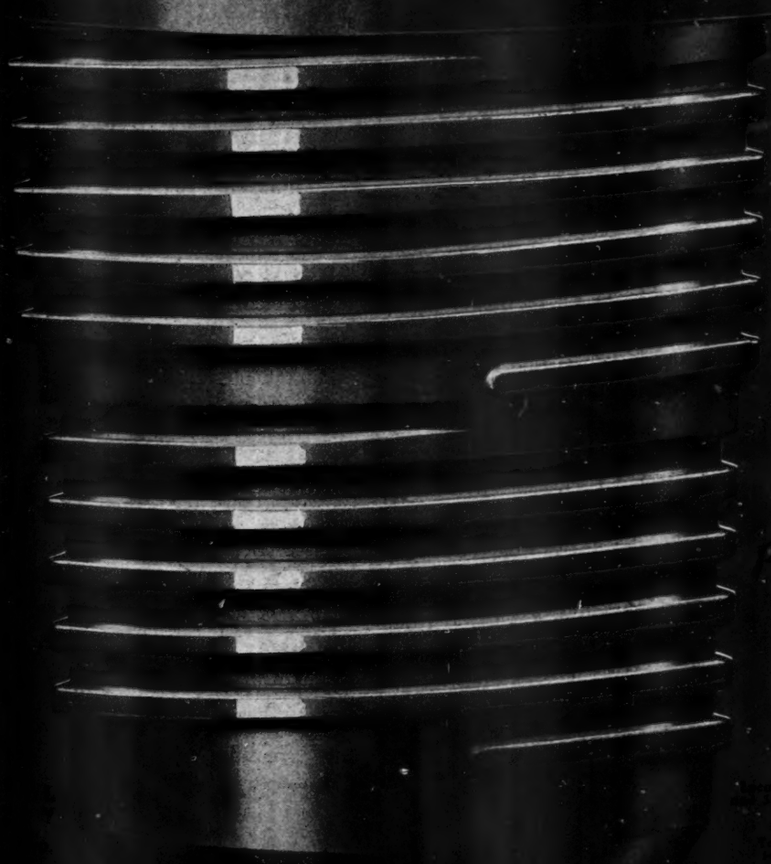

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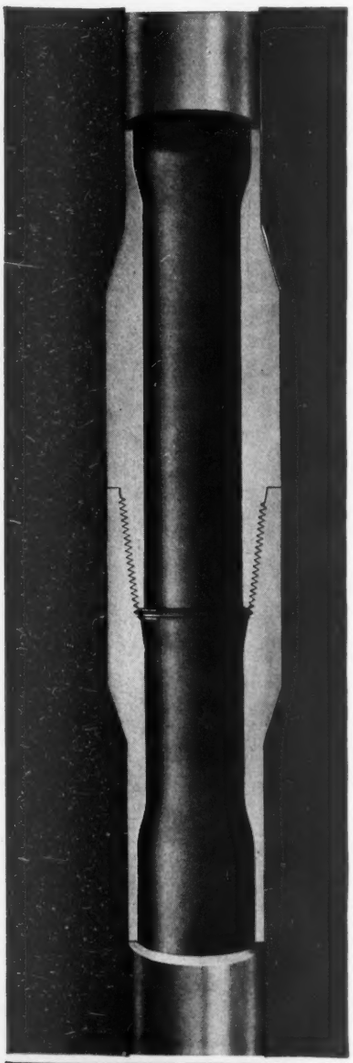

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SUBSCRIPTIONS: United States, 1 year, $6.00; 6 months, $3.00. Elsewhere, 1 year $7.00; 6 months, $3.50. SINGLE COPIES: 20 cents. Price of any back copy more than 1 year old is 50 cents.

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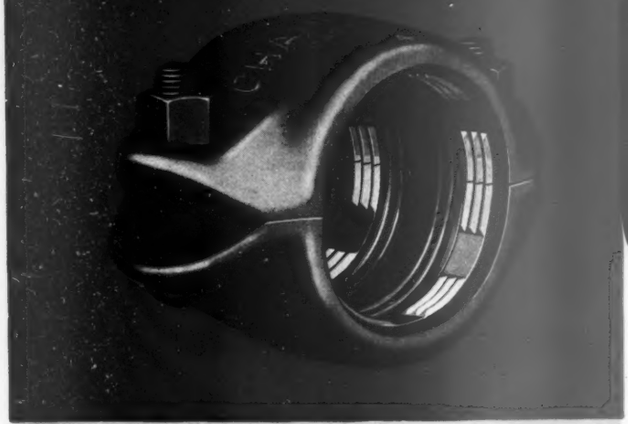
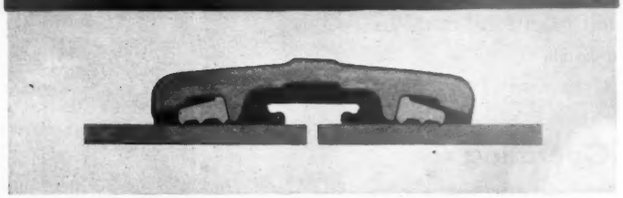
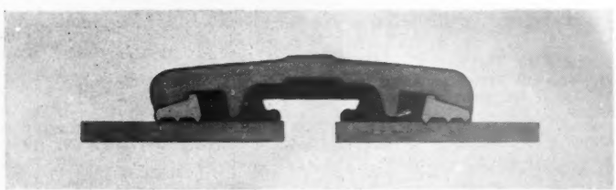


CHAMPION "77"

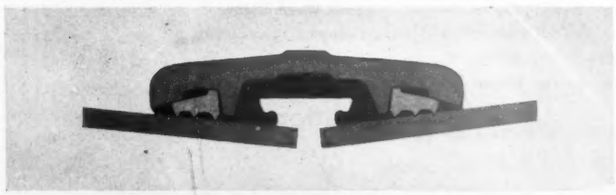
Double Sealed PIPE COUPLINGS



EXPANSION... The gripping rings or dies do not release their normal bite into the pipe surface, but with the resilient gasket automatically adjust themselves.



CONTRACTION... Note position of dies—still holding their normal bite. The resilient gasket continues to press against the pipe surface, giving a double seal.



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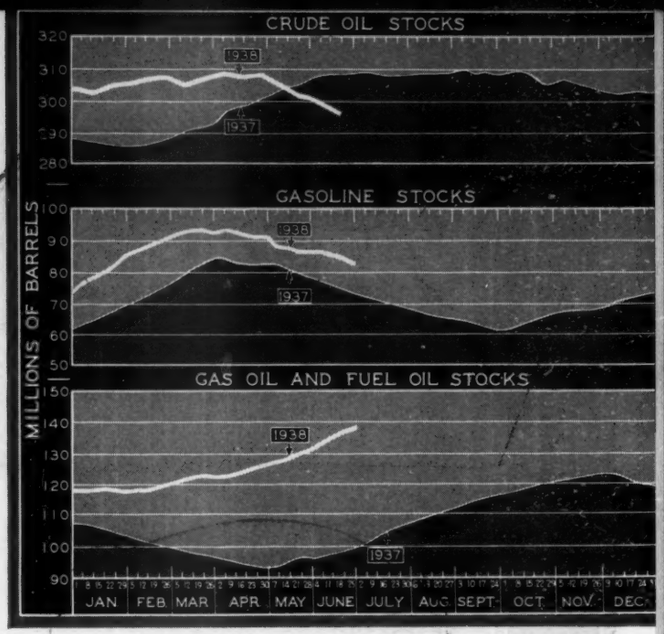
Trends

Crude Output Lowest Since December, 1936; Market Gains Widen


CRUDE OIL STOCKS
GASOLINE STOCKS
GAS OIL AND FUEL OIL STOCKS
1938
1937
MILLIONS OF BARRELS
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

A BELATED cut in Oklahoma's output, with a smaller reduction in California, brought last week's national crude oil production under 3,100,000 barrels for the first time since December, 1936. It climaxed a curtailment period started in late May made necessary by a long period of overextension in both crude production and refinery operations.

CRUDE PRODUCTION *3,079,389 barrels daily average—down 58,716 barrels.*

CRUDE STOCKS *295,931,000 barrels as of June 18—down 1,266,000 barrels.*

GASOLINE STOCKS *82,412,000 barrels as of June 25—down 2,064,000 barrels.*

GAS AND FUEL OIL STOCKS *137,801,000 barrels on June 25—up 794,000.*

REFINERY RUNS *3,025,000 barrels daily week ending June 25—down 55,000.*

As June was brought to a close there was general agreement that the low production levels have been justified by the ends accomplished. The industry starts the second half-year in a much better statistical situation than was thought possible a few weeks ago. Crude stocks were reduced 11,266,000 barrels during the seven weeks ending June 18, and for three weeks ending June 25 reductions in gasoline inventories have totaled 5,355,000 barrels. While gains in fuel oil and gas oil inventories for several weeks exceeded the reductions in gasoline and crude oil, recent increases have been smaller due in part to an improved demand. Rising consumption of the heavy oils is in prospect over the remainder of the year.

Markets have strengthened owing to this change in the industry's operations. Gasoline prices continue an upward trend in the Mid-Continent, with support on Monday through a tankcar advance in eastern quotations. Improvement also is apparent in tank-wagon and service-station prices at subnormal points. The most important of these changes was the return to normal quotations on third-grade gasoline, kerosene, and tractor fuels in most of the Standard of Indiana territory, effective Wednesday.

Developments the first of the week, some of which had not been officially announced, indicated that July will bring some increases in crude oil production. While several crude purchasers have not added to their July nominations over June others will increase their field takings due to the larger requirements of their refineries. An example is the action of a buying company in Oklahoma and Kansas which will resume 100 per cent deliveries to its refineries in the Middle West July 1.

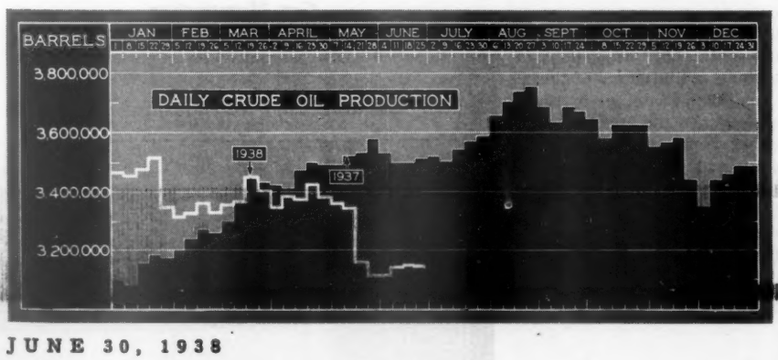
It is not believed that moderate increases in Texas output and some of the other states during July will disturb the statistical situation. With July gasoline consumption always greater than in June, crude runs to stills can be increased slightly without sacrificing the heavy withdrawals from motor fuel storage which have been under way since early June.

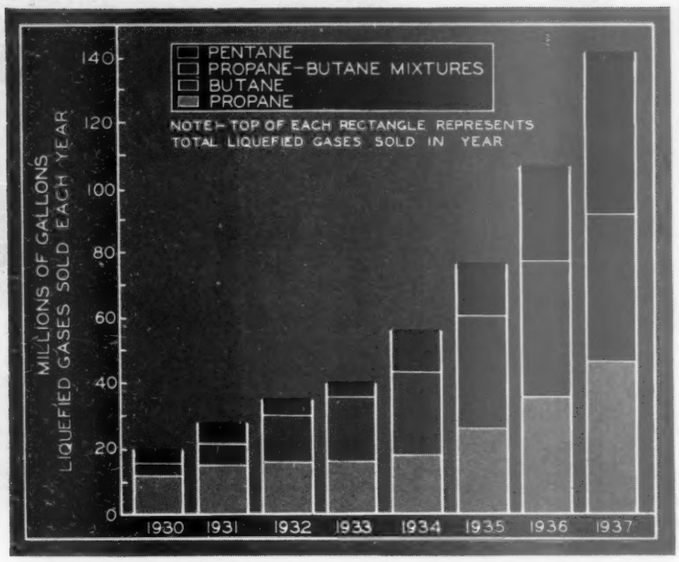
More important is the fact that recent crude oil production has been substantially less than the current demand. This is shown in the average reductions of approximately 240,000 barrels daily in crude stocks starting the first of May. The large liquidation of inventories was justified on the ground that it represented crude which the crude buyers and refiners were forced to run to storage last year and early this year when the supply exceeded the demand. With these stocks removed it is believed the companies will be willing to resume purchases which will result in smaller reductions in crude stocks. Many market students who have projected probable requirements over the rest of the year are confident this steady improvement in crude demand will continue in August and September provided there is no overproduction by operators and refiners during July.

DAILY AVERAGE PRODUCTION FOR WEEK

	June 25 1938	Bur. Mines June est.	June state allowables	June 18 1938
Oklahoma City	95,225			106,100
Fitts	39,800			40,950
Remainder of state	273,425			299,000
Total Oklahoma	408,450	508,300	405,000	446,050
East Texas	363,849			363,497
West Texas	180,702			179,446
North Central Texas	96,750			97,698
Texas Panhandle	66,548			64,849
East Central Texas	87,296			89,348
Gulf Coast Texas	301,698			302,548
Southwest Texas	91,350			92,250
Total Texas	1,188,193	1,329,300	1,159,713	1,189,636
North Louisiana	79,380			80,875
Gulf Coast Louisiana	179,250			181,800
Total Louisiana	258,630	250,000	250,475	262,675
California	665,000	650,000	620,000	679,500
Kansas	152,975	172,300	160,000	159,550
Arkansas	46,650	48,300		42,955
Eastern fields	142,500	145,400		141,000
Michigan	53,861	54,000		55,219
New Mexico	90,890	108,300	91,000	90,880
Rocky Mountain area	72,240	67,400		70,640
Total United States	3,079,389	3,333,300		3,138,105

Decrease, 58,716 bbls. daily.





Trend in annual sales of liquefied gases

Industrial De
Liquefied Gas

By W. T. ZIEGENHAIN

The liquefied gas industry has been able year after year, since its beginning 20 years ago, to record a substantial increase in its sales volume. Its ability to do this regardless of general economic conditions has caused many to consider the young associate of the petroleum business a "depression-proof" industry.

Fortunately the few who entered this industry at the start were able to build for permanency rather than early profits. They also were able to correlate their efforts most effectively. Safety of equipment was given first consideration because the industry was marketing the most highly volatile liquid fractions of crude oil. Because of the soundness of design chosen for the earliest equipment there were no reverses during those pioneering days. It was proved later, that some of the equipment was "over-designed" and the manufacturing and distributing companies at first bore an extra investment load. Experience demonstrated that lighter equipment could be used and also permitted the expansion of the market in new uses.

Instead of confining itself to the use of the materials as convenient fuel in the home for cooking this new industry developed a series of products suitable as fuels for use in the heavy industries. Automobile plants, tool manufacturers, railroad repair shops, bakeries, glass plants and dozens of other industries began to investigate the merits of these new, convenient, clean, and high-B.t.u. fuels. As a result the products were given quite general acceptance. This permitted pioneers in the liquefied gas industry to secure high-volume outlets for their products and the industrial consumption now accounts for more than half of the total sales volume annually.

Largely as a result of the industrial consumption, the liquefied gas industry has been able to become important as an outlet for the lighter fractions of crude oil but by the same token, demand fluctuates with the ups and downs of the general industrial swings.

It is for this reason that to date the 1938 total sales of liquefied gases have lagged behind 1937 for the same period. However, with a resumption of industrial activities over the latter half of the year the record for 1938 may be decidedly less discouraging than at the present moment.

One important factor must be considered when attempting to compare the industrial consumption for the two years. In the latter part of last year automobile production was being curtailed in anticipation of lesser sales volume. This fall there is a strong possibility automobile manufacturers will resume operations on a larger scale than in 1938. The length of the summer shutdowns of the major automobile manufacturers may offer a clue to their plans for the latter half of 1938.

Since the trend of general industrial activities will be a major factor in establishing the total liquefied gas sales for 1938 it is not safe to offer more than a loose estimate. However, even if the total simply equals last year's, the 1938 figure will be impressive. As a guess this seems quite likely to be realized and slightly exceeded.

According to the Bureau of Mines the liquefied gas industry sold 141,505,000 gallons of propane, butane, pentane and mixtures of these in 1937. This was 33 per cent more than sold the previous year. Of the quantity sold in 1937 about 29 per cent was consumed in homes for cooking and general heating, 8 per cent in gas manufacture, 50 per cent as industrial fuel and as raw material for the manufacture of chemicals, 12 per cent as fuel for internal combustion engines and about 1 per cent for all other purposes.

So far this year, the consumption of these fuels in homes (bottled gas) has been relatively high, the total consumption by gas manufacturers is about the same, the industrial consumption is lower, and the consumption as engine fuel is probably lower.

QUANTITY OF LIQUEFIED GASES SOLD IN THE UNITED STATES DURING PAST 16 YEARS

(All data in gallons unless otherwise stated. Taken from Bureau of Mines report.)

Year—	Propane	Butane	Propane-butane mixtures	Pentane	Total	Incr. over previous year: Gallons	Incr. over previous year: Per cent
1922	.....	.....	.....	.....	222,641	.....	.....
1923	.....	.....	.....	.....	276,863	54,220	24.4
1924	.....	.....	.....	.....	376,683	99,820	36.0
1925	.....	Prior to 1930 sale of liquefied gases was confined largely to bottled gas	.....	.....	403,674	26,991	7.2
1926	.....	.....	.....	.....	465,085	61,411	15.2
1927	.....	.....	.....	.....	1,091,005	625,920	134.6
1928	.....	.....	.....	.....	4,522,899	3,431,894	314.6
1929	.....	.....	.....	.....	9,930,964	5,408,065	119.6
1930	11,500,000	.....	*6,517,000	.....	18,017,000	8,086,036	81.4
1931	15,000,000	.....	*13,770,000	.....	28,770,000	10,753,000	59.7
1932	15,182,000	14,662,000	3,417,000	854,000	34,115,000	5,345,000	18.6
1933	15,835,000	19,056,000	3,226,000	814,000	38,931,000	4,816,000	14.1
1934	18,681,000	25,553,000	10,271,000	1,922,000	56,427,000	17,496,000	44.9
1935	26,814,000	34,084,000	13,492,000	2,465,000	76,855,000	20,428,000	36.2
1936	36,502,000	40,200,000	27,375,000	2,575,000	106,652,000	29,797,000	38.9
1937	46,474,000	45,504,000	46,694,000	2,833,000	141,505,000	34,853,000	32.7

*Includes butane and pentane.

Bottled Gas

Some times the liquefied gas industry is referred to as the "bottled gas industry." This in turn suggests the dispensing of relatively small containers of the various products. As a matter of fact, the broader version of the liquefied gas industry recognizes that close to 80 per cent of the products of the industry move from the manufacturing plants in tankcar or tank-truck lots and only the remaining 20 per cent moves in cylinders and drums.

Close to 90 per cent of the material sold in cylinders and drums is consumed in homes while the balance is absorbed in miscellaneous ways, including the manufacture of highly specialized chemicals as distinguished from the other chemicals made from these same gases but on a large scale.

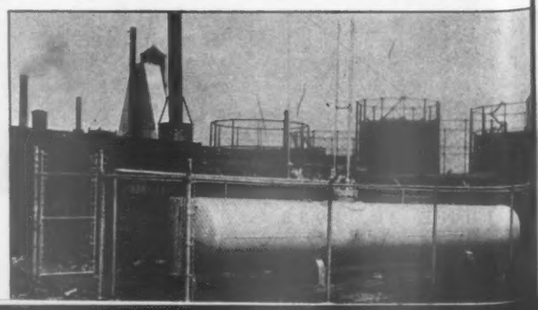
Considerable improvement has been made in the design and choice of equipment used in household installations. This improvement has come in the form of greater convenience and flexibility. Installation costs have been reduced in the past year, automatic features have been added which make it easy to make service continuous and more convenient. By installing two-drum units, it has been possible to guarantee continuous service with more than ample time for renewing the empty cylinder and without necessitating the home-owner switching connections to the full container either at the time the one cylinder becomes empty or when it is replaced with a new one. And those companies which advocate the use of only one drum have speeded up deliveries and improved the servicing of the units.

For domestic use, the great bulk of the demand is supplied by propane. In 1937 slightly more than 30,000,000 gallons of propane were thus consumed. In that year only about 6,000,000 gallons of butane were consumed in this manner and the quantities of pentane and mixtures of propane and butane approximated only 4,000,000 gallons.

Gas Manufacture

In the broad field of gas manufacture in which liquefied gas is being used as an enricher, butane

Tankcar size tank used for industrial consumers



e mand for

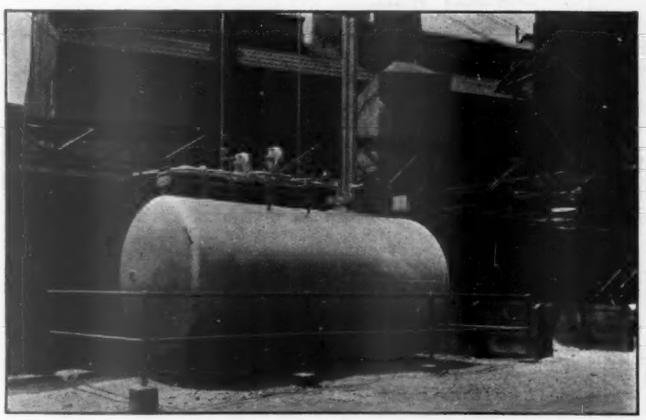
s Is Vital

Typical liquefied gas distribution plant. Note large storage tanks at right

is the principal product consumed. About 7,000,000 gallons of this were used in 1937, while less than 4,000,000 gallons of all other liquefied gases were consumed in this manner.

Industrial Fuels

As suggested earlier, at least half of the normal outlet for liquefied gases is through industries. Among the group the automobile is by far the largest consumer. It utilizes liquefied gases of one kind or another to heat-treat engine parts and tools, run in engines as they come off the assembly lines and for torch-cutting and welding Although the total quantity of liquefied gases thus consumed is known to be high, the exact quantity is not computed to show consumption by industries. Furthermore the industrial consumption reported by the Bureau of Mines includes that consumed by chemical plants. Since the latter are beginning to assume large proportions it is essential to recognize that fact when quoting the industrial consumption of these gases.



Tank-truck size industrial storage tank and connections

In 1937 the combined consumption of these by all industries was 70,000,000 gallons. Of this quantity 28,000,000 gallons were butane, 15,000,000 gallons were propane, 25,000,000 gallons were mixtures of the two and 2,000,000 gallons were pentane.

Over the future an increasing quantity of these products is expected to move to chemical plants where the products will serve as convenient and reasonably pure sources of hydrogen and carbon. The liquefied gases having a preponderance of unsaturates will probably be sought.

Distribution Plants

In many areas, particularly in California, Washington, Oregon, West Virginia, Michigan, and Pennsylvania, where the advantages of natural gas are understood and appreciated, but where natural gas is not made available, large numbers of liquefied gas distribution plants are being operated. At the beginning of the year there were 179 communities in all, which were being served through central distribution systems. In practically all instances these plants were built and operated by independent companies and their only connection with the oil industry was in the purchase of the latter's products.

There were 76 companies in the business, and these were serving 33,300 customers. In the great majority of cases a mixture of air and butane was supplied. The heating value of the mixture was held between 520 and 900 B.t.u. per cubic foot, depending upon the type of gas demanded. There were 125 plants of this type. In 14 communities a mixture of undiluted butane and propane was supplied having a heating value of between 2,800 and 3,000 B.t.u. Undiluted propane gas alone, having a heating value of 2,550 B.t.u., was supplied to 40 communities, located principally in Maryland, Minnesota, New Jersey, North Dakota, Virginia and Wisconsin.

In practically all instances these fuels are distributed through local pipe line systems, the butane, propane or mixtures coming to the plant in tank-cars or tank-trucks. This arrangement simplifies the servicing of individual household units, and where there is a sufficient concentration of potential users, the central system is preferred.

However, there are many locations, particularly in resort regions, where there are not sufficient numbers of consumers to justify central distribution systems but which demand the convenience and cleanliness to gas fuel. In these areas individual home units have proved popular. These are served with cylinder and drum shipments, and the importance of this method of distribution becomes apparent when it is noted that 29,926,000 gallons moved in this manner during 1937 and accounted for about 21 per cent of the entire quantity of liquefied gases sold. Rural electrification has become a strong competitor in relatively few areas.

Exports

Exports of liquefied gases have declined to a relatively small quantity. France has been the principal purchaser for years. In 1937 France retained her position as the chief foreign buyer but took only 1,301,000 gallons, compared with 4,128,000 gallons in the previous year. This is due to France building its own recovery systems at new French refineries.

The importance of the French purchases still is apparent, however, when it is recognized that only 1,879,000 gallons of liquefied gases were exported in 1937 as a total. Of this quantity, 1,612,000 gallons were butane, 159,000 gallons were propane, and 108,000 gallons were mixtures of these two.

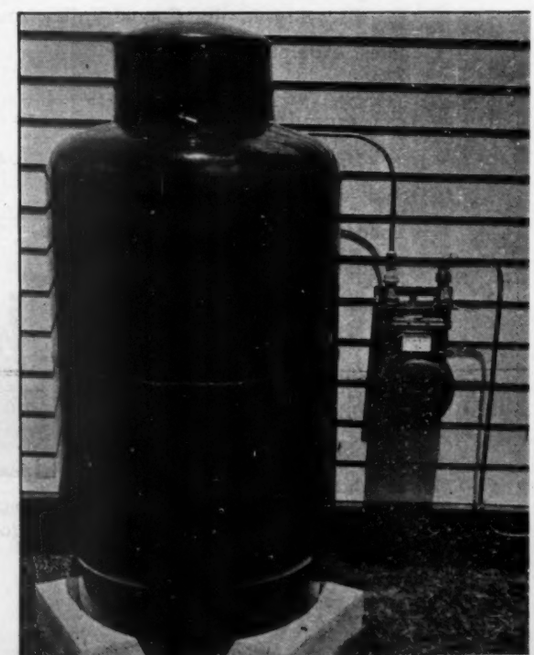
Polymerization

Since the liquefied gas industry has come into being a marked change has been made in the economics of its manufacture. At first liquefied gases were considered special products of crude oil, more particularly from natural gasoline plant operations. Only comparatively well equipped plants were able to effect the high degree of separation necessary for the manufacture of commercially pure propane, butane or even suitable mixtures of the two. This also came at a time when the natural gasoline industry was anxious to further stabilize its principal products. This in turn caused increasing quantities of propane and butane to be produced as by-products. At about this time natural gasoline manufacturers viewed with envy any chance to fill quantity commitments and the "bottled gas" business seemed especially inviting.

Then the demand for 100-octane motor fuels became pronounced. The expanding use of this product as fighting-grade aviation gasoline hastened the research in polymerization, dehydrogenation, alkylation, etc. It so happened that the most economical methods utilized butanes and propanes as charging stocks and for the past three years there have been some who questioned whether there would be sufficient hydrocarbons of the three- and four-carbon-atom groups to supply the normal demands for these.

A review of opinions of authorities when this question was put to them indicates they are quite in agreement that more than enough butane and propane fractions are available from crude oil and natural gas wells already drilled than will be needed over several years into the future and the quantity could be augmented to take care of any reasonable demand that may develop later.

One-drum "bottled gas" unit



SPARKS FROM THE NEWS

BOOKKEEPING BOOST

The constantly expanding bookkeeping of the oil business received another boost in the announcement that a major marketing company's credit cards will be honored through a reciprocity arrangement by nine companies operating in other sections of the United States and Canada.

LONG WAIT

Illinois officials now explain that proration will be postponed until production equals petroleum demands of that state, which means multiplying present output by four.

1938 LARGEST

The 230-mile pipe line from Lance Creek to Denver is the largest project for transportation of crude oil announced in the United States this year.

GOVERNMENTAL EXPANSION

When the President signs the Lea bill the federal government becomes a direct factor in the operations of the three billion-dollar natural gas industry, serving nine million customers.

CONSTANT CHANGE

New discoveries continue to change the importance of existing oil pools. The Lower Marine oil discovery in the Cotton Valley area is the latest example.

CONFIDENCE

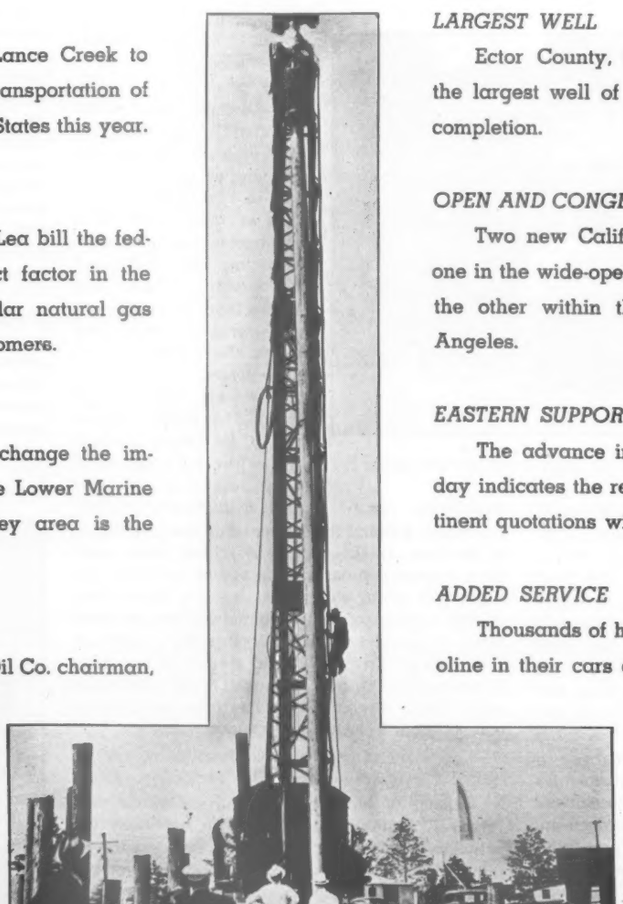
Lord Cadman, Anglo-Iranian Oil Co. chairman, told stockholders there has been steady progress in the number of oil-consuming machines the world over and demand for petroleum products is still on the top grade which should benefit the industry as a whole. He feels the industry will have no reasonable cause to be disappointed with results this year.

GASOLINE FAMINE

A gasoline famine is in the offing if sponsors of the New York and San Francisco expositions succeed in convincing twenty million motorists they should attend both events next year.

IRREDUCIBLE MINIMUM

The oil film one-tenth of one-millionth of an inch thick (or should it be "thin"?) described to eastern visitors at Beacon suggests that in this phase of their activities technologists are approaching the irreducible minimum.



Two-ton hammer is driving 340 Oregon fir piles, 85 feet long, for foundation of Petroleum Industry Building at New York World Fair

LARGEST WELL

Ector County, in West Texas, brought forth the largest well of the week with a 15,000-barrel completion.

OPEN AND CONGESTED

Two new California oil fields are reported—one in the wide-open spaces of Fresno County and the other within the congested confines of Los Angeles.

EASTERN SUPPORT

The advance in eastern gasoline prices Monday indicates the recent upward trend in Mid-Continent quotations will be supported in other areas.

ADDED SERVICE

Thousands of home owners who consume gasoline in their cars and distillates in their furnaces now burn liquefied gas in kitchen ranges. Consumption of these gases totals 141,500,000 gallons yearly.

CLOSING DOOR AFTER—

After bad operating practices had resulted in permanent losses Louisiana is preparing to strengthen its mineral code.

Two Potential Fields Found in California

By L. P. STOCKMAN

LOS ANGELES, Calif., June 27.—Petroleum Securities Co., a Doheny operating company now headed by Mrs. E. L. Doheny, has discovered an oil field in the Guijarral Hills section of Fresno County and D. & B. Oil Co. is believed to have opened another oil field in the Lomita district of Los Angeles Basin south of the eastern tip of the Torrance field. The former's wildcat, drilled as a joint undertaking of Petroleum Securities, Honolulu Oil Corp., and Seaboard Oil Corp. on a 50, 25, 25 per cent basis, flowed at the rate of 3,000 bbls. of 35.3-gravity oil and about 10,000,000 feet of gas per day from the Avenal zone of Eocene age with the tester open for 45 minutes from a 34-foot interval at 6,815-49 feet, with the bottom of the hole at 6,849 feet. The new Guijarral Hills oil field is a few miles southeast of the eastern tip of the East Coalinga field on the Coalinga-Kettleman Hills anticline in a direct line between these two fields and about 7 miles northwest of the Kettleman North Dome field. Location of the discovery well was selected following a geophysical survey which indicated existence of a possible geological high approximately 2 miles long and about 1 mile wide.

Petroleum Securities and associated companies hold approximately 2,500 acres under lease around the well and appear to control the cream of the potentially productive acreage. Superior Oil Co., Union Oil Co., Universal Consolidated Oil Co., Section Six Oil Co., Standard Oil Co., Tide Water Associated Oil Co., and Texas Co. also have leases and fee-owned acreage in the general area and may get into the play if the field proves larger in areal extent than anticipated. Most of the leases are held in large blocks and while this will preclude intensive development we may expect several tests drilled in the near future. A number of wells will undoubtedly be started at once in section 7-20-16 in a hot spot that the Superior Court recently created by granting a petition of separation and partition of the acreage among several owners. This acreage is due north of the discovery and is practically proved as productive. If operators proceed with their original plans there will be 10 wells drilling in this new field within 30 days. Superior Oil Co. secured some of the divided acreage in section 7-20-16 and has enough acreage to sustain eight wells on the basis of one well to each 20 acres. Union Oil Co. tied up two quarter sections after completion of the discovery well but this acreage is rather well removed from the scene of operations.

Further Tests

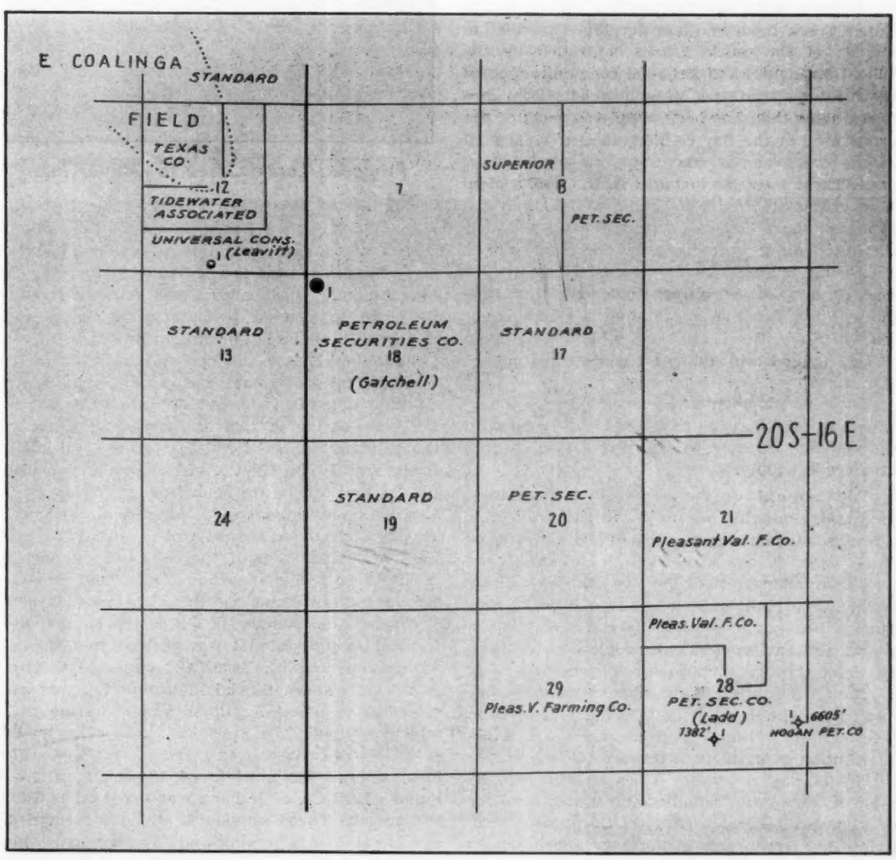
Texas Co. has already started grading operations on No. 19 Mohawk preliminary to starting this well in section 12-20-15 northwest of the discovery, and Universal Consolidated Oil Co. has about completed preparations to spud in No. 1 Leavitt-Hintze in the same section. The latter company decided to drill before Petroleum Securities had made its formation test as it had previously ascertained the discovery well had actually cored a very rich oil sand. Tide Water Associated Oil Co. has made a tentative location for No. 1 Guardian in about the center of section 12-20-15 but will probably retard drilling operations pending the outcome of the well of Universal Consolidated Oil Co. It is assumed Texas Co. and Tide Water Associated Oil Co. will contribute some dry hole money to Universal Consolidated as this company's well will prove surrounding acreage and eliminate drilling three wells where one would serve the purpose. There is very little possibility of operators unitizing drilling and production activities in this field although it is likely a uniform plan of development will be worked out. Tentative plans call for the drilling of one well to each 20 acres, staggered locations and retardation of drilling for a period of 60 days following each completion.

The discovery well, No. 2 Gatchell of Petroleum Securities in section 18-20-16, has an 8⅝-inch water string cemented at 6,690 feet and this shut off has been effective. Upon conclusion of the formation test, the company resumed drilling to determine as far as possible the maximum thickness of oil sand and late in the week the bit was still in the pay at 6,860 feet which means a total of 45 feet of oil sand has been logged to the present depth. Tentative plans call for the well to be cored indefinitely although this program may be changed if the bit should happen to encounter a gray sand. The result of the formation test made on No. 2 Gatchell was not surprising as testimony in a court action involving landowners in section 7-20-16 indicated several weeks ago the company had cored an exceptionally rich oil sand in the equivalent of the Avenal zone which has been proved productive in the Kettleman North Dome field by Kettleman North Dome Association, Standard Oil Co., and Superior Oil Co.

Two Zones Cored

Two separate oil zones were cored in No. 2 Gatchell, one at 6,711-24 feet and the second at 6,814-49 feet but the formation test on the upper zone proved inconclusive. The lower zone was exceptionally rich oil sand and it is from this sand that production was secured. The discovery well has been standing suspended since the landing of the 8⅝-inch water string on April 5 when the company announced it would not make a production test for several months because of the overproduction situation. Drilling was resumed a week ago and after drilling out the cement the company proceeded with the formation test. No. 2 Gatchell is the second wildcat drilled by this company in the Guijarral Hills and one of several drilled in the Guijarral Hills and adjacent area. The first wildcat of Petroleum Securities in this area was No. 1 Ladd in section 28-20-16 and it was abandoned as a duster at 7,383 feet after failing to offer any encouragement. Dana Hogan, president of Hogan Petroleum Co., first operator to develop commercial production in the Mountain View field of Kern County, also drilled a wildcat in section 28-20-16 but this well, No. 1 Ladd, was suspended at 6,060 feet. This well was not carried deep enough and it is probable it may be deepened. This well was not abandoned and may prove interesting if work is resumed although No. 1 Ladd of Petroleum Securities Co.

(Continued on Page 36)



Petroleum Securities Co. discovery southeast of the East Coalinga field, Fresno County

To Lay 230-Mile 6-Inch Line From Lance Creek to Denver

By T. R. INGRAM

DENVER, Colo., June 28.—Continental Oil Co. will lay a 230-mile 6-inch pipe line from Lance Creek, Wyoming, to Denver, estimated to cost $2,000,000. Continental has production in Lance Creek and a refinery in Denver.

Most of the refineries in this territory, including those at Casper, Glenrock, Parco and Laramie, in Wyoming, and at Florence and Craig, in Colorado, were located primarily with a view to being close to their crude oil supplies on the theory that the distribution of products would be more economical from these points than the shipment of crude to important distribution centers The Laramie and Florence refineries have been dismantled in recent years.

Refinery Situation

Continental Oil Co. was the first to reverse this policy and build at Denver, the largest consumer market in the area. Last fall the capacity of that plant was doubled. Bay Petroleum Co. last year completed a refinery just across the highway from the Continental plant in Denver. For a while it obtained its crude from the Medicine Bow and Rock River fields in Wyoming.

A few months ago independent groups in the Lance Creek field who had developed production outside of the unitized area controlled by the Ohio, Continental and Argo Oil companies, pooled their interests in the Minnelusa Oil Co. Lance Creek since then has been supplying most of the crude used at the Bay refinery in Denver and all of the crude run by the Bay refinery at Cheyenne. These interests included A. B. Cobb, a Montana operator; Fred Goodstein, of the American Pipe & Supply Co., of Casper; Manning & Martin, Inc., drilling contractors, and one or two others.

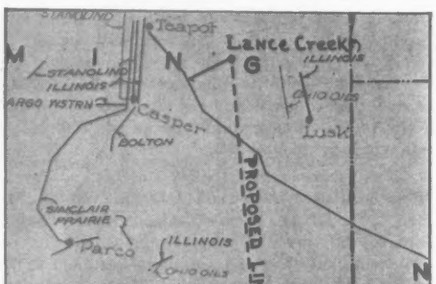
During the past few weeks C. U. Bay, of 1 Wall Street, New York, president of the Bay company; Fred Manning, of Manning & Martin, Inc.; Messrs. Cobb, Goodstein, and others, have been in Denver and are said to have been in frequent conferences.

These developments indicated the group of independents with crude to sell were working with the refinery officials who wanted to be assured of a crude supply.

The California Co. has been credited as desirous of coming into this territory with its producing, refining and marketing units. In the past two or three years it has succeeded in developing its own production at Medicine Bow, Quealy, Rangely, Wilson Creek and one or two other places. Then it began marketing its products in this territory, first at wholesale through bulk stations and later through numerous retail outlets.

The California Co. is not alone among the majors said to be desirous of building refineries in this territory. Phillips Petroleum Co. has a big distribution of products in this area. Several times within the past few years it has attempted to develop its own crude supplies and to negotiate for new crude discoveries. Gulf Oil Corp. also is entering this territory as a marketer and has been active in prospecting for new oil fields. Shell interests also are here.

Crude supplies is one of the determining factors. There are between 7,000,000 and 8,000,000 acres of prospective oil land under lease to major companies in Colorado and Wyoming and when conditions are right there will be plenty of prospecting. Two years ago Stanolind Pipe Line Co.



Proposed Lance Creek to Denver line

revamped its pipe line from Wyoming to Freeman, Mo., to move its surplus crude, including some Lance Creek production, to eastern markets. The Stanolind crude is not available to competitors, but now that Lance Creek crude will soon be piped to Denver, there is a change in the picture. There is no proration in Wyoming or Colorado to bother the operators.

California does not send a single gallon of gasoline into Colorado, but California companies are more active in this territory than those in the Mid-Continent. General Petroleum Corp., California Co., Union Oil Co. of California, Superior Oil Co. and others are back in the territory.

Colorado's consumption of gasoline in 1937 was 222,297,891 gallons, of which 116,355,093 gallons, or 52 per cent of the total, was imported from Kansas, Oklahoma and Texas. The remaining 48 per cent came mostly from Colorado and Wyoming. Continental Oil Co. is the largest distributor in the state. It was assessed for 34,808,975 gallons in 1937. Texas Co. was second with 23,839,952 gallons. Sinclair Refining Co. was assessed for 10,069,487 gallons and Powerine Co., which is supplied by Sinclair with gasoline made to its specifications, was taxed on 8,075,480 gallons, a total for Sinclair of 18,134,967 gallons. Standard Oil Co. of Indiana was taxed on 14,630,182 gallons. These companies all have refineries in Colorado or Wyoming and Continental is the only one of the group with a refinery at Denver.

Outside of the above group the Navy Gas & Supply Co., the Shell agency, was taxed on 7,791,375 gallons; Phillips Petroleum Co. on 8,366,111 gallons, and Cities Service Oil Co. on 1,034,425 gallons. The remainder was distributed among jobbers, bulk stations and retailers who import from refiners, mostly in the Mid-Continent.

The new pipe line from Wyoming to Denver will be a common carrier. It is rumored other purchasers of crude in Lance Creek may acquire a minority interest in the line.

New Madison Grand Jury for Gasoline Price Inquiry

WASHINGTON, D. C., June 28.—The department of justice confirms report that a federal grand jury will meet July 12 in Madison to hear further antitrust charges involving Midwest oil situation. Some 25 witnesses have been subpoenaed.

George M. Tunison, attorney for L. L. Coryell & Son, Lincoln, Neb., distributor in 14 middle western states, filed charges with Assistant Attorney General Thurman W. Arnold accusing major producers of persisting in monopolistic practices designed to "force the independents to the wall."

He charged that major producers were cutting down production and buying large stocks from independent refiners to "squeeze out" independent producers by controlling the output.

Tunison asserted that the "same tactics" which led to the Madison trial were being employed by major producers. He said Arnold appeared interested in his report, indicating that he might submit the complaint to the monopoly investigation committee this week.

MADISON, Wis., June 28.—While federal court officials here declined to confirm or deny that subpoenas have been issued for a new grand jury investigation of the oil industry, it is understood from reliable sources that an inquiry is planned into gasoline prices.

It has been learned definitely that the secretary of one large company included among those indicted on price-fixing charges in 1936 has received a subpoena directing him to bring his records into court.

A regular grand jury term was scheduled here several weeks ago to clean up the general calendar of pending criminal cases awaiting formal indictment of defendants. It will open July 12. It was reported today that representatives from the department of justice will present evidence after the grand jury concludes its general work.

It is reported that subpoenas have been issued for nearly 30 individuals, including executives of some companies named in a second indictment who did not join in a "nolo contendere" plea accepted by the court here June 2 on charges of combining to restrict jobber margins.

Judge Patrick T. Stone has announced he will hand down his decision July 19 on motions after verdict convicting 16 corporations and 30 individuals on January 22 of a price-fixing conspiracy.

Technicians Learn of Research in East

ALLAN V. RITCHIE

By H. STANLEY NORMAN

POUGHKEEPSIE, N. Y., June 27.—How he had succeeded in depositing films of oil as thin as one-tenth of one-millionth of an inch on steel surfaces and developing tests to determine their lubricating qualities was described here last week by Dr. Walter Claypoole, physicist at the Beacon laboratory of Texas Co.

Doctor Claypoole addressed about 50 technicians attending the annual meeting of the National Petroleum Association Department of Standards and Tests, who had spent a day inspecting the Beacon laboratory. How the Beacon laboratory functions in the Texas Co. organization was related by Allan V. Ritchie, superintendent, who was host for the day, June 24, in behalf of the company.

Dr. R. P. Anderson, secretary of the refining division of the A.P.I. and of Committee D-2 for the A.S.T.M., and other technical bodies, told of efforts to develop national and international standard test methods.

Film Deposition

The tedious process of cleaning the steel testing surface to be certain it is absolutely free of even the slightest lubrication was one of the first difficulties to be overcome in Doctor Claypoole's work with oil films of such minute thinness. He related how deposition was first attempted by blending oil with pure benzine and then permitting evaporation to remove the latter substance. This system failed because of uneven distribution. Finally, a method of producing an oil "fog," resembling cigaret smoke, was perfected. In producing the oil "fog," nitrogen pressure was applied to the lubricant container and the metal upon which deposition is desired is charged with 1,000 volts which sets up attraction for the negative elements in the lubricant. Experiments under this process, regulated in degree of deposition by time, determined that film thickness could be accurately determined and deposition made absolutely uniform. Later work convinced Doctor Claypoole that oil film thickness can be determined even more accurately by a color method, each successive predetermined film thickness producing a different color. The film thickness is graduated from two-millionths of a millimeter in linear ascension to any desired thickness under the system described by Doctor Claypoole.

Doctor Claypoole's experiments have to do with elements of friction, the laws of which, he said, are known but with almost universal lack of complete understanding. From a practical standpoint, Doctor Claypoole's work with thin film lubrication is linked with prevention of bearing and shaft scoring in machines standing idle for extended periods in which oil has been squeezed out by pressure, leaving only fine films to prevent engine damage in early stages of resumed service.

For testing the lubricating qualities of thin films in fractions of a millionth of an inch Doctor Claypoole described an apparatus inspected and in regular service in the Texas Co. laboratory. It consists of a metal disc upon which the oil "fog" can be deposited which in service rotates against a point that can be changed according to the desires of the technician. A system of weights and balances on a suspended bar supporting the rotating disc on the other end regulates the element of friction and can be adjusted according to the desired information.

Two of the Beacon laboratory buildings were converted to their present service after originally serving as a textile mill. The visitors saw a modern, well-equipped petroleum laboratory in operation. In addition to the standard testing machines such as C.F.R. engines for determining knock characteristics of motor fuel, viscometers, A.S.T.M.'s standard machine for testing extreme pressure lubricants, etc., the laboratory houses many special testing devices and other equipment designed in part or in whole by the company. One of the most interesting pieces of equipment was the chassis dynamometer upon which any desired highway condition can be simulated to determine the reaction of motor fuels and the engines of various types of automobiles. From a control panel mounted near the driver's seat any desired degree of climb or speed can be imparted to the car under test by the operators. Below the floor of the room housing the chassis dynamometer are facilities to adjust the temperature and rate of air discharged by a large fan against the radiator of the car under test. The fan gears are so arranged that a 30-mile per hour breeze is discharged against a car under test at the same speed. Likewise, a 60-mile per hour air current is discharged on a car being tested at that speed rate. Distillation work is carried on in a separate building, but at Beacon consists largely of solvent recovery, although research work in other phases of distillation are carried on. Beacon functions as a standard laboratory for others in the Texas Co. system. Various testing apparatus are inspected and tested at Beacon before they are passed on to other laboratories for service to make certain results should be checkable irrespective of the origin of data.

Machine Shop

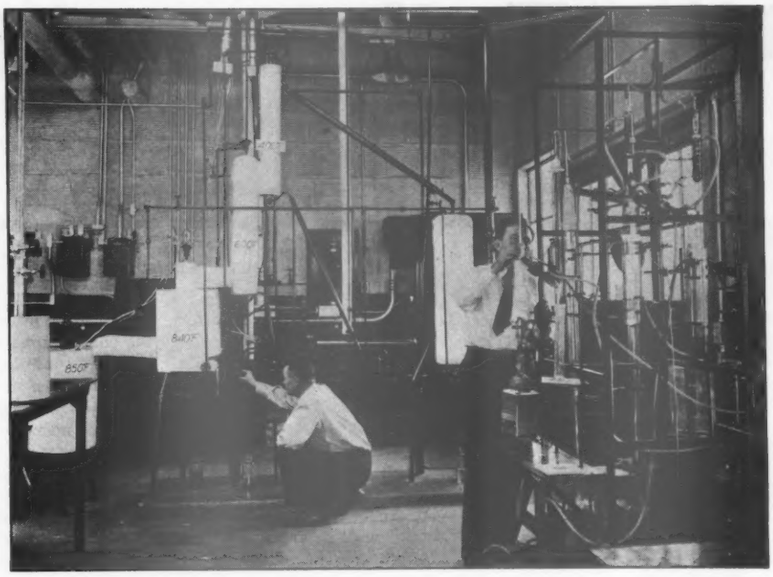
A part of the Beacon laboratory is a completely equipped machine shop in which about 18 to 20 machinists are currently engaged in producing various machines and structures designed by the engineering department. Water from the Fishkill River generates about 50 per cent of the power utilized in the laboratory.

Most of the solvent dewaxing and extraction

Fundamental study of oxidation characteristics of base-type lube oils

experimental work is carried on in a separate structure where semiworks models of acetone-benzol and furfural plants are located. Refrigeration for three cold rooms, which incidentally are dehydrated to remove the nuisance of frost formation, for work on wax-bearing lubricating oil stocks and for other laboratory purposes, is developed in the laboratory.

In describing the functions of the Beacon laboratory, Mr. Ritchie said the work is divided into five major classifications under research. They are organic, processing, engineering, grease and asphalt. He said approximately 80 per cent of the work at Beacon consists of research problems. About 20 to 30 per cent of the laboratory's work is fundamental research, possibly of the type that offers little chance of immediate return in the form of new products or new processes which can be capitalized upon in a reasonably short time.



Fractionation operations

Mr. Ritchie said justification for petroleum laboratories falls into three general classifications, control, service and research. Texas Co. has 37 laboratories at various refineries and major terminals. The Beacon laboratory is the only one in the system remote from refineries, terminals and fields. Because of their location the terminal laboratories are chiefly concerned with control work. Those laboratories functioning in conjunction with refineries are dealing with both control and processing work, while practically all of the research is assigned to Beacon. Some of the steps necessary in research necessarily overlap the other two general phases, but through a general technical committee the duplication is held to a minimum.

Analytical and Testing

Among those composing the Texas Co. technical committee are the manager and assistant managers of the research committee, the chief engineer and his assistants, the manager and assistants of the refining department, the chief patent attorney and his aids and the heads of the laboratories at Beacon, Port Arthur and in California.

The research program at Beacon is supported by analytical and testing departments. The program for each year is mapped out in advance after suggestions have been invited and received from various departments. Composition of the program is determined on a basis of necessity, prospects of tangible results and time available.

The progress made in standardizing methods of test was described by Doctor Anderson who said that since 1924 there have been 43 procedures adopted or tentatively accepted by the A.S.T.M. From an international aspect of developing standards of test, Doctor Anderson said progress is being made, but it is a difficult problem to influence technicians of one country to abandon their test methods for those of another country. The best time to obtain international standardization is during the development of the process, as successfully demonstrated by the C.F.R. committee. Doctor Anderson said that with only a few comparatively minor variations the test methods for determining knock rating of gasoline is standardized on an international scale.

The main criticism of standardization work in its present status by Doctor Anderson was with regard to the manner in which instructions are written. He said that purposes and nature of the tests were presented in "deplorable" fashion and he was often tempted to suggest complete abandonment of the descriptions.

The A.S.T.M. is now devoting much thought to development of a standard test for determining the ignition quality of diesel fuel, but Doctor Anderson said this work has not progressed to the extent that even a tentative standard can be approved. He said such a test was one of the major needs in the petroleum industry.

After inspecting the Texas Co. laboratory during the forenoon, the group attending the N.P.A. meeting were guests of the company at luncheon.

Those registering for the meeting were: C. W. McConnell, Conewango Refining Co., Warren, Pa.; E. E. Ebner, Quaker State Refining Co., Emlenton, Pa.; H. W. Wagner, United Refining Co., Warren; G. O. Ebrey, Pennzoil Co., Oil City; Harold O. Button, Allegany Refining Co., Bolivar, N. Y.; F. L. Garton, Shell Petroleum Corp., Wood River, Ill.; F. E. Williams, Quaker State, Emlenton; H. A. Krantz, Kendall Refining Co., Bradford, Pa.; W. M. Cross, Valvoline Oil Co., Franklin, Pa.; E. E. Bown and C. E. Hulme, Kendall Refining Co., Bradford; Charles R. Scott, Wolverine-Empire Refining Co., Reno, Pa.; E. M. Keely, Cities Service Oil Co., Petty Island, Philadelphia; MacLean Houston, United Refining Co., Warren; Russell R. Buckham, James B. Berry Sons, Oil City; W. B. Smith, Wolverine-Empire Refining Co., Oil City; Gerard Goyette, James B. Berry Sons, Carteret, N. J.; George Murphy, Tiona Petroleum Co., Philadelphia; F. L. Miller, Standard Oil Development Co., Elizabeth, N. J.; J. W. Griswold, Cities Service Co., Petty Island refinery, Philadelphia; Richard A. Wotowitch, Cities Service Oil Co., New York; W. Claypoole, R. W. Hall and B. Y. McCarthy, Texas Co., Beacon, N. Y.; Dr. R. Haskell and F. W. Hall, Texas Co., New York; A. V. Ritchie, Texas Co., Beacon; B. L. Heath and A. M. Crittenden, Freedom Oil Works Co., Freedom, Pa.; W. E. Kuhn, Texas Co., New York; A. D. Hill, Sinclair Refining Co., Wellsville, N. Y.; E. J. Hanna, Continental Refining Co., Oil City; Fred A. Nicholson, Elk Refining Co., Falling Rock, W. Va.; Gifford Moore, Denison University of Ohio, White Plains, N. Y.; Roman L. Sailer, Valvoline Oil Co. Franklin; A. E. Beeker and C. A. Neusbaum, Standard Oil Development Co., New York.

M. L. Haider Joins Jersey Co., Salnikov Succeeds Him

Michael L. Haider has resigned as chief engineer of Carter Oil Co., Tulsa, to become a member of the engineering staff of the Standard Oil Co. of New Jersey at New York City.

He has been succeeded by Ivan S. Salnikov, former division superintendent in the Burbank district of western Osage County, Oklahoma. Mr. Salnikov was born and educated in Russia, graduating from the Russian Military Institute and serving in the World War. He came to this country in 1923, and completed postgraduate work at Colorado School of Mines as petroleum engineer in 1925. He has served with the Carter company as petroleum engineer, chemical engineer and division engineer, and directed the repressuring work in the Burbank field.

IVAN S. SALNIKOV

Petroleum Rail Shippers Seek Reduction in Rates

FORT WORTH, Tex.—Members of the Petroleum Rail Shippers Association, composed of independent refiners of Oklahoma and Texas, will petition the Interstate Commerce Commission for a reduction of rates on petroleum products from the Mid-Continent to western trunk lines, estimated to save members of the association some $2,000,000 a year. The territory to which the refiners want the rates reduced is the normal marketing territory of the central west and southeast. The meeting was held at Hotel Texas.

Officers of the association include M. H. Champion, president, traffic manager of Anderson-Prichard Oil Corp. of Oklahoma City, and Douglass Orme, traffic manager, Cosden Petroleum Corp., secretary-treasurer.

Mr. Champion said that in spite of the continued increase of gasoline consumption in the area to which the gasoline is shipped, rail rates with the recent increase granted by the Interstate Commerce Commission are at the highest level in rail history.

The association will ask for a decrease of approximately 20 per cent under present tariffs. The association estimated the decrease would mean a saving of approximately $40 a tankcar of gasoline on the basis of 50,000 cars a year shipped by members of the association into the territory served by the western trunk lines.

The association has a membership of 24. The complaint will be filed as soon as possible before the Interstate Commerce Commission, Champion said.

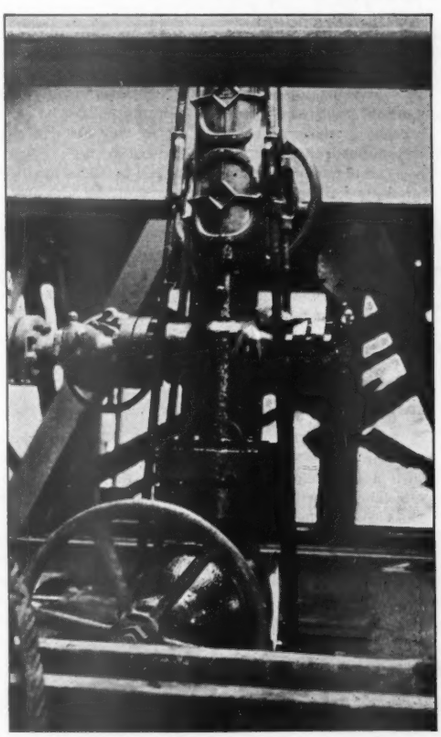
Deep Oil in Cotton Valley Is of Prime Importance

By GEORGE WEBER

SHREVEPORT, La., June 27.—The discovery of oil in the Lower Marine formation at Cotton Valley marks North Louisiana's outstanding field development of recent months. The new strike, made by Stanolind Oil & Gas Co. on the southeast flank of production, changes entirely the outlook for development of the major oil and gas field.

Four factors make this a discovery of primary importance. In the first place, it involves a change in the status of the field from a gas and distillate pool in the Lower Marine to an oil and gas field. Secondly, the wide extent of the present proven gas-distillate producing area indicates the possibility of a major oil reserve on the flanks of the major structure. In the third place, the crude itself shows on detailed analysis excellent characteristics. The extension of the field 1¾ miles southeast, an important development in itself, is the least of the points of interest in the discovery.

Stanolind Oil & Gas Co. No. 1 Pardee is in the SW NE section 36-21-10, over a mile from the nearest production. The top of the Lower Marine formation was encountered at 8,050 feet in the outpost well, showing it to be about 19 feet lower than the next nearest producer in the gas area. Approximate depths of the four sand stringers above the Bodcaw sand were, "A" sand 8,192 feet, "B" sand 8,232 feet, "C" sand 8,431-49 feet and "D" sand 8,473-98 feet. Fifteen feet of the "D" stringer showed a porosity of 15 to 16 per cent and a permeability of 240 millidarcys.



Heavy christmas tree installed on No. 1 Pardee is standard equipment for wells in the high-pressure Bodcaw sand

In the Bodcaw sand section two sands were cored at 8,572-8,605 feet and 8,611-30 feet, separated by a 6-foot shale break. The top sand showed gas and distillate similar to that in the field proper and the second sand carried a 39-gravity waxy crude oil. Passing up the gas sand, operators set 5½-inch casing at 8,607 feet with total depth at 8,642 feet.

The saturated gas sand, or Upper Bodcaw, has a thickness of 15 feet, a porosity of 14 per cent and a permeability of 100 millidarcys. The saturated lower oil sand is 13 feet in thickness with a porosity of 14 per cent and a permeability of 150 millidarcys. Connate water to the extent of 14 per cent is indicated, and saturation runs 60 per cent.

While attempting to complete the well, the tubing became plugged, and the well was produced through the annular space between the tubing and casing for the initial gauges. Six successive hourly gauges were made on a three-eighths inch choke with the following results:

	Gas m.f.c.	Oil bbls.	Gas-oil ratio
First hour	19.5	43	435
Second hour	24.6	42	585
Third hour	28.4	35	810
Fourth hour	37.8	67	565
Fifth hour	39.1	61	640
Sixth hour	39.0	70	555

The gravity of the crude increased during production from 39 to 41.9 degrees, and the pour point declined from 80 to 60 degrees. No water production is present. While the well is closed in awaiting a pipe line outlet, it is being reworked. The tubing is being pulled, cleaned and rerun and the well will be brought in through the producing string ready for regular production as soon as an outlet is furnished. No definite plans for a line to the outpost have been announced by pipe line companies serving the field.

History of the Field

Cotton Valley is an outstanding example of the discovery of new oil, gas and distillate reserves in deeper sands underlying old shallow fields of North Louisiana. Originally discovered in 1922, the field was developed in the shallow Blossom sand, and later in the anhydrite zone of the Lower Glen Rose.

In August, 1936, a deep test which discovered the Bodcaw sand of the Lower Marine formation, was plugged back and completed in another newly opened sand, the Holloway pay of the Upper Travis Peak. These two horizons are the object of all current drilling in the field. Subsequent drilling over the past 1½ years has revealed that the Bodcaw sand comprises one of the largest gas and distillate reserves in the state. It has been proven over an area of approximately 15,000 acres with no limit indicated to the gas and distillate production, with exception of the recent oiler.

The development of an oil-producing section at Cotton Valley will necessitate a revision in the regulations now in effect in the field. Cotton Valley deep is classed as a gas field, and production of the distillate is based on proration of marketable gas. Oil production in the Bodcaw sand presents a problem in allocation, and a special order of temporary status is expected to be issued by the Department of Conservation regarding the production of the discovery well. In time, however, as the intervening area between the proven oil production and the gas-distillate area of the field is developed, a method of demarcation between gas wells and oil wells will be necessary. Although it is too early in the development of such a possibility to predict how this problem will be handled, the attention of field operators and conservation engineers is being directed toward the formulation of an equitable plan for controlling development and production on a new basis.

Separator hook-up with completed well in background

It is unanimously agreed among producers in the field that an 80-acre spacing rule would be desirable in the oil sector. Such a plan is in effect in the gas-producing part of Cotton Valley at present. It is believed the discovery well will be given an allowable of about 500 bbls. daily.

Crude Characteristics

Since the importance of any oil discovery hinges considerably on the character of the crude, the fact that the new Cotton Valley deep crude is of good quality greatly enhances the value of the strike. The crude has a very high paraffin content, and the pour point varies from 60 to 80 degrees. No trouble is anticipated in its production, since bottom-hole temperatures are high,

(Continued on Page 36)

Industry Forecast of Demand For July, August, September

This forecast represents a compilation of the estimates of representatives of industry associations, oil companies, and petroleum economists, submitted at the request of the Bureau of Mines. Of the replies received, nine were sufficiently complete to be incorporated in the averages contained in the following table. Others indicated willingness to cooperate if such quarterly forecasts prove to be of interest and value to the industry. It should be noted this forecast represents a composite of industry opinion and does not include any estimates by the bureau. The bureau's current July forecast was completed before the industry forecasts were examined and compiled. (See page 96.)

	Forecast July, 1938	Forecast Aug., 1938	Forecast Sept., 1938	Forecast third quarter, 1938	Actual third quarter, 1937
Domestic demand for motor fuel:					
Domestic demand	50,440	50,720	47,210	148,370	147,550
Exports	3,770	3,690	3,790	11,250	11,190
	54,210	54,410	51,000	159,620	158,740
Supply of motor fuel:					
Straightrun and cracked gasoline production	43,800	44,000	42,370	130,170	135,770
Natural gasoline used at refineries	3,140	3,480	3,830	10,450	11,030
Total refinery production	46,940	47,480	46,200	140,620	146,800
Benzol and other natural gasoline	870	870	880	2,620	2,370
Decrease in gasoline stocks	6,400	6,060	3,920	16,380	9,570
Available supply	54,210	54,410	51,000	159,620	158,740
Crude oil requirements:					
Per cent yield of gasoline from crude	44.13	44.20	44.06	44.13	43.30
Refinery crude required	99,250	99,550	96,160	294,960	313,530
Daily average	3,202	3,211	3,205	3,206	3,408
Foreign crude runs	2,520	2,510	2,370	7,400	7,800
Domestic crude runs	96,730	97,040	93,790	287,560	305,730
Exports	7,270	7,510	7,060	21,840	20,390
Fuel and losses	2,900	2,910	2,800	8,610	9,380
Total demand for domestic crude	106,900	107,460	103,650	318,010	335,500
Daily average	3,448	3,466	3,455	3,457	3,647

The average estimated total demand for motor fuel of 159,600,000 bbls. represents an increase of about one-half per cent over the third-quarter of 1937. A considerable diversity of opinion was shown in the estimates of motor fuel demand, domestic demand ranging from 145,900,000 bbls. to 151,200,000 bbls., exports from 9,400,000 bbls. to 14,100,000 bbls., and total demand from 157,000,000 bbls. to 162,900,000 bbls.

Estimates of desirable reductions in stocks of finished and unfinished gasoline by September 30 also showed considerable variance. Using the Bureau of Mines' figures of 90,100,000 bbls. for April 30 as a base, the average estimate received for reductions in May and June was 8,700,000 bbls., indicating stocks of 81,400,000 bbls. as of July 1. On the assumption that such liquidation would occur, the average further reduction for the third-quarter was 16,400,000 bbls., indicating total stocks of 65,000,000 bbls. as the average objective for September 30. In the individual forecasts, this objective varied from 62,000,000 bbls. to 68,000,000 bbls., with several comments that a level as low as 60,000,000 bbls. would be desirable.

The average estimated yield of gasoline from crude for the quarter was 44.1 per cent, but with a variance from 43.5 per cent to 44.8 per cent. The average estimate of total crude runs required was approximately 19,000,000 bbls. less for the quarter than in 1937. In the event of such reduction, much higher yields than normal for distillate fuel oils and some other products will be necessary at the expense of the residual fuel yield.

The total market demand for domestic crude will be affected materially by the trend of crude exports. Uncertainty in this respect was indicated by a variation in estimates for the quarter ranging from 18,000,000 bbls. to 30,000,000 bbls.

It is of further interest to note that the quarterly average of the four most conservative forecasts received indicated a total motor fuel demand for 158,400,000 bbls., an average yield of 44.05 per cent, a gasoline stock reduction for the quarter of 18,100,000 bbls., average daily runs of 3,162,000 bbls., total crude exports of 21,100,000 bbls., and an average daily market demand for crude of 3,407,000 bbls.

It was suggested that separate forecasts for California and east of California might be useful. As only a few such estimates were received, they are not properly comparable with the average national totals. However, such estimates as were received for California for the third quarter indicate a reasonably attainable gasoline stock reduction of 2,300,000 bbls., daily average crude runs of about 550,000 bbls., and a daily average market demand for crude of 640,000 bbls.

It should be definitely understood that this forecast represents market demand for crude and does not forecast required production. In several forecasts it was indicated that further substantial reductions in crude stocks would be desirable.

Standard of Indiana Consolidates Crude Purchasing Activities

Standard Oil Co. (Indiana) on Tuesday announced a plan to further simplify and consolidate its crude oil purchasing activities.

As of June 30, Stanolind Crude Oil Purchasing Co. will transfer its properties and business to Standard Oil Co. (Indiana), of which it is a fully-owned subsidiary, in furtherance of a plan for complete liquidation of Stanolind Crude Oil Purchasing Co.

The subsidiary will convey all real and personal property, including oil in storage and shares in the newly organized Stanolind Oil Purchasing Co. to Standard of Indiana.

Following the transfer, Standard of Indiana will purchase crude oil directly in all areas formerly served by Stanolind Crude Oil Purchasing Co., with the exception of Texas where Stanolind Oil Purchasing Co. is to function.

Standard of Indiana has posted the same crude oil prices and purchase conditions as are now in effect by Stanolind Crude Oil Purchasing Co.

Standard of Indiana has completed arrangements for a crude oil purchasing department with offices in Tulsa. It will be headed by A. W. Peake, vice president of Standard, at Chicago, with Ralph O. Dietler as general manager, and A. L. Carlson as auditor, at Tulsa.

Ohio Oil Co. Announces Changes in Personnel

To facilitate handling of accounting matters and supervise a development campaign in the Cotton Valley and Haynesville, Louisiana, fields the Findlay, Ohio, office of Ohio Oil Co. announces several changes in personnel in offices in Tulsa, Fort Worth, Tex., and Findlay. Vice President Walter W. Fleming, who has been placed in charge of the company's activities in East Texas, Arkansas and Louisiana, in addition to Oklahoma and Kansas, will retain his headquarters in Tulsa. The accounting department handling marketing and refining will be consolidated at Findlay, Ohio, within 60 or 90 days.

Because of the transfer of J. P. Hughes, head of the Oklahoma-Kansas marketing territory, to Louisville, Ky., to take charge of a similar department there, L. B. McCammon, who has been in charge of marketing activities in Tulsa, becomes manager of the Oklahoma-Kansas division at Tulsa. The Texas marketing division with headquarters in Fort Worth will continue under the management of J. C. McCoy. There has been no change in the Houston, Tex., office which handles the Gulf Coast and West Texas divisions. The production, land and geological departments of the Mid-Continent region will continue to center in Tulsa under Mr. Fleming.

Mission Corporation Buys Habiger Discovery Lease

Sale of the discovery lease in the Habiger area of the Stumps pool, Rice County, Kansas, to Mission Corp. through the Skelly Oil Co., was confirmed by A. A. Buschow, president of the Bridgeport Machine Co., Wichita, which owned the property, and by officials of the Mission Corp. in Tulsa. The consideration, Mr. Buschow said, was "in excess of $250,000" in cash.

Japanese Tankers Concentrating For California Shipments

LOS ANGELES, Calif.—A large portion of Japan's commercial tanker fleet, together with foreign tankers under charter to Japanese operators, is being concentrated in the San Pedro-Estero Bay-Port San Luis area as a result of the credit situation, wherein California petroleum interests are declining to load Japan-destined oil cargoes until approved credits are in hand.

Four tankers were empty at anchor on San Pedro Bay, the Japanese carriers Nisshin Maru II and the Hokki Maru and the chartered Norwegian tramps Gefion and Ima. At Port San Luis were the Japanese tankers Tachibana Maru and the Daisan Ogura Maru and on Estero Bay the Norwegian-flag Sir Osborne Holmden, Hoegh Hood and Krossfonn. Certain tankers carrying oil for the Japanese navy are provided credit releases even before their arrival here and load immediately. In this category the Daiiti Ogura Maru is to load 80,000 bbls. of fuel at the Texaco terminals.

Pollution Bill Vetoed By the President

WASHINGTON, D. C., June 27.—President Roosevelt has refused to sign the stream pollution bill, his objection being to the machinery for recommending federal aid for control projects. Pollution will be an active subject in the next congress which may mean a more drastic measure.

The President pointed out the bill provides for direct presentation, through the secretary of the treasury of the recommendations of the surgeon general for authorization by congress of specific projects under the loan and grant-in-aid provisions without any opportunity for review by the chief executive. He said appropriations of this nature should be subject to review by the budget bureau.

N.L.R.B. Orders Hearing In Muskogee Complaint

FORT WORTH, Tex.—Edwin A. Elliott, regional director of the National Labor Relations Board, has issued a complaint against Pure Oil Co., charging unfair labor practices in the operation of a refinery at Muskogee, Okla.

The Oil Workers' International Union, Local 265, alleged the company discharged 46 men for joining and aiding the union, and that 8 were let out because they testified in a former N.L.R.B. hearing in Muskogee. Mr. Elliott set a hearing for July 18 at Muskogee.

Shell Union Corp. to Float $25,000,000 Loan

NEW YORK.—Shell Union Oil Corp. has concluded arrangements with a group of insurance companies for a 15-year loan of $25,000,000 to be used for future development of properties, plants and other corporate purposes.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Remember Last Year

As the oil business enters the last half of 1938 starting Friday it should profit from its experience in the same period of last year. A year ago it had highly favorable prospects. The first half year's operations had been satisfactory with an increasing demand; the highest in the history of the industry, assured for the final six months.

We now know that the industry as a unit overproduced that record market and brought about a situation which necessitated the drastic curtailment remedies of the past few months.

The domestic industry in the last half of 1937 produced an average of 3,573,000 barrels of crude oil daily. Natural gasoline production increased, as did imports, so total domestic supply averaged 3,883,000 barrels a day.

These excessive operations were carried over into the refinery with the result that the needed reductions in gasoline stocks were not made during the summer months and inventories increased too rapidly during the late fall and winter period.

The industry also failed to make provision for a drop in the demand for heavy oils which started with the business recession in the fall months.

These unwise and unnecessary operations were continued into the first part of 1938 with results that are too well known and recent to require analysis here.

The industry through sharp reductions has since been able to offset that prolonged overproduction so that it is again headed in the right direction.

These emergency remedies which have worked hardships on many producers and refiners and have strained the application of state proration regulations would not have been necessary if the industry had curbed its tendency to over expand.

There are too many uncertain factors at this time to establish a definite line to guide operations during the balance of the year, which is all the more reason for careful consideration and calculation. But there are certain fundamentals which should be kept constantly in mind.

The total demand for gasoline the coming six months will be at least as great as it was in 1937. So far it has been about 4 per cent ahead of last year. Kerosene and distillates also occupy strong positions in both export and domestic markets.

The demand for heavy fuels, which has been running far behind the 1937 level, is tied in directly with the general business trend for the balance of the year.

Stocks of fuel oil, including gas oil and distillates are 38,000,000 barrels more than they were a year ago. While burdensome, these stocks of heavy oils will tend to eliminate any necessity for heavy runs to stills next fall and winter when the gasoline demand falls off and the fuel consuming season gets under way. A sustained improvement in general business activity will strengthen the statistical situation of heavy oils.

It is certain the industry should not duplicate the high crude oil production and refinery operations of the final six months of last year. If it does, the consequences are sure to be disastrous.

On the other hand, if this danger is recognized and avoided, it is equally certain that the 240,000-barrel reductions in daily crude production which have been made effective in recent weeks will not have to be continued throughout the balance of this year.

When this curtailment has absorbed the excess in operations of previous months the industry can return to an operating status in line with current consumption.

This industry has gone a long way in getting its house in order again. It can finish the job quickly and through balanced operations benefit from the continued strong demand for its products over the rest of the year.

Ask Cooperation by Government and Business

WASHINGTON, D. C., June 27.—Cooperation between business and government is being much discussed in Washington since congress adjourned, and particularly—of all places—in connection with the newly-launched monopoly investigation.

Actually, strong forces are at work to place this monopoly investigation on a plane of a cooperative study of business trends and practices rather than permitting it to degenerate into a political instrument, an exposition of preconceived theories, a chastisement of business leaders, or a general fishing expedition. How well these forces will succeed remains to be seen as the investigation progresses. The investigators are meeting this week to formulate preliminary policies, and many of them have conflicting economic theories and several have particular axes to grind.

The investigation was asked by President Roosevelt in his special message to congress on April 29, and was authorized by the O'Mahoney resolution approved just as congress adjourned. This resolution creates a "temporary national economic committee" with a life of 2½ years and composed of six members of congress and six representatives of executive departments. This committee is directed "to make a full and complete study and investigation with respect to the matters referred to in the President's message of April 29, 1938, on monopoly and the concentration of economic power in and financial control over production and distribution of goods and services, and to hear and receive evidence thereon, with a view to determining, but without limitation (1) the causes of such concentration and control and their effect upon competition; (2) the effect of the existing price system and the price policies of industry upon the general level of trade, upon employment, upon long-term profits, and upon consumption; and (3) the effect of existing tax, patent, and other government policies upon competition, price levels, unemployment, profits, and consumption."

Following this study the committee is directed to recommend legislation on these subjects "including the improvement of antitrust policy and procedure and the establishment of national standards for corporations engaged in commerce." This last phrase was thrown in by Senator O'Mahoney to leave the door open for a recommendation for his pet plan of licensing all big corporations by the federal government.

However, the course of the probe will depend more on the personnel of the committee than its general sailing orders. Therefore it is important to note that the congressional half of the committee is composed of men who can be expected to give business an even break. The six from "the Hill" are Senators Joseph C. O'Mahoney of Wyoming, William E. Borah of Idaho, and William I. King of Utah, and Representatives Hatton Sumners of Texas, Edward C. Eicher of Iowa, and Caroll Reece of Tennessee.

Members of Committee

Senator O'Mahoney, who is considered to have earned the chairmanship through sponsoring the resolution, is on record as saying he wants to keep the inquiry fair, objective and constructive, although he can be counted on to plug for his federal licensing plan. Senator Borah is also a sponsor of federal licensing and a traditional denouncer of monopoly, but he also has an important reputation as a student, and being a Republican he can prevent the investigation from being used as a New Deal campaign weapon. Senator King, ranking member of the Senate Judiciary Committee, is a conservative Democrat of the old school, suspicious of all New Deal ideas, and to a certain extent a defender of business theories.

On the house side, Representative Sumners is chairman of the House Judiciary Committee, also a conservative and with a reputation for fairness and clear thinking. Neither Representatives Eicher, a Democrat, nor Reece, a Republican, are outstanding members of congress, but both have done good service on the important Committee on Interstate and Foreign Commerce. Representative Eicher is probably the only 100 per cent New Dealer in the group, and he has sponsored an amendment to the Clayton antitrust act, suggested by the Federal Trade Commission, to place a definite limit on the size to which any corporation may grow, measured either by total assets or percentage of business done.

The "down-town" members are Richard C. Patterson, Jr., assistant secretary of commerce; Isador Lubin, commissioner of labor statistics in the department of labor; Commissioner Jerome Frank and Chairman William O. Douglas, alternating for the Securities and Exchange Commission; Assistant Attorney General Thurman Arnold for the department of justice; Chairman Garland Ferguson and Commissioner Ewin Davis alternating for the Federal Trade Commission; and Chief Counsel Herman Oliphant and Admiral C. J. Peoples, chief of the procurement division, alternating for the treasury department.

Mr. Patterson is a former business man and is something of a conservative, judged by New Deal standards. Mr. Lubin, while generally labeled a progressive, is known as a serious student of economic conditions, and his service on behalf of labor has not been of the antibusiness sort. Dr. Frank was a member of President Roosevelt's original "brain trust" and has recently published a book on economic problems in which he counseled a middle course between communism and fascism, while Chairman Douglas has won praise for his fair and cooperative administration of the Securities and Exchange Commission.

The two federal trade commissioners are both conservative southern Democrats, and while the F.T.C. has at times proposed some rather drastic legislation its attitude on the whole has been one of cooperating with business, Professor Arnold, as head of the Antitrust Division, has thrown some scares into business men and he has some pretty definite ideas about forcing competition, but he insists he wants this investigation to be a research rather than a prosecuting job. The treasury's representatives on the committee, strange to say, may prove to be the most uncompromising in their attitude toward business. Mr. Oliphant was the originator of the ill-starred undistributed corporation profits tax and other "soak the rich" tax proposals, while the Procurement Division under Admiral Peoples has attempted to break up the basing point system of pricing used by several industries and has campaigned against uniform bids on commodities traditionally sold at identical prices because of identical specifications.

STATE CAPITALS

TEXAS

RAILROAD COMMISSION OF TEXAS late Tuesday issued an order lifting the Saturday shutdown of Texas oil fields for July but retaining idle Sundays. The commission fixed an allowable production on July 1 of 1,602,086 bbls., but estimated the daily average allowable for July, with deductions for five shutdowns on Sundays, would be 1,359,192 bbls. The commission estimated actual production thus far in 1938 had run 1.85 per cent under the allowables, and on this basis stated the approximate daily production for July would be 1,334,047 bbls.

The commission found itself in an unusual situation, in that the majority of operators throughout the state were unified in asking for more stringent production restrictions than the commission had indicated a desire to enforce. Only a minority in the East Texas district asked for abolition of the shutdown days in that field, and agreed allowables in other fields should be cut back to compensate for the proposed increase in East Texas.

There had existed a sizeable gap between the basic allowable of Texas and the market demand as forecast by the Bureau of Mines. While operating under the one- and two-day per week holiday system, the basic allowables rose steadily, but the actual flow was checked sharply by the close-down method. In January, 1938, the basic allowable was 1,357,573 bbls., while five months later, or on June 1, it had increased to 1,578,726 bbls. Actually, however, the daily production was held to 1,196,586 bbls. for the first half of June, or almost 400,000 bbls. below the state's basic figures, due to emergency shutdown measures. During June the bureau's forecast for Texas demand was 1,329,300 bbls. per day, contrasted to the basic state allowable of 1,578,726 bbls., and the actual production of 1,196,586 bbls. per day.

LOUISIANA

HOUSE BILL 288, to levy a tax on lubricating oil, was further amended by house floor amendments, which follow:

Amendment No. 1 provides that the tax on lubricating oils sold in the state in containers of 50 gallons or more and actually used or consumed on the farm shall be collected at the rate of 4 cents per gallon, or at a like rate for the fractional part thereof, and such sales may be regulated under rules and regulations promulgated by the collector of revenue.

Amendment No. 2 provides that the tax therein levied shall not apply to lubricating oils when sold to ships engaged in foreign and coastwise commerce, and such sales may be regulated under rules and regulations promulgated by the collector of revenue.

KANSAS

THREE MAJOR OIL PURCHASERS, through their representatives, told the Kansas Corporation Commission on Monday that the United States Bureau of Mines estimate of market demand in the state in July was from 15 to 33 per cent higher than requirements. The companies were Stanolind Crude Oil Purchasing Co., the Texas Co. and Phillips Petroleum Co. One other buyer, Continental Oil Co., said its requirements in July would be 1,312 bbls. per day above its June allowable. The commission fixed the July allowable at 165,000 bbls. per day.

KANOTEX REFINING CO. announced it would need an average of 8,000 bbls. of crude per day during July and August. Its posted prices for crude are 15 cents under other companies for oil of the same gravities. The commission had already granted permits to run 75 per cent of the "frozen" under-production in several pools where Kanotex buys oil, and it is estimated Kanotex will get 30,000 bbls. of this crude.

Lloyd, Frost & Study, Inc., were denied a permit to produce 2,000 bbls. of oil per day in the Weathered pool in Cowley County for the last 10 days in June, although the company claimed to have a market for the crude.

THE KANSAS SUPREME COURT on July 27 stayed an injunction of the Cowley County district court which enjoined the corporation commission from enforcing the state oil conservation act. The action of the upper court permits the corporation commission to enforce the act pending a hearing on the injunction, the date for which had not been set. The injunctions were granted by the Cowley County court to W. N. McNab of Winfield and the Tulsa Oil Corp. in one case and to Earl F. Wakefield of Wichita in the other. In the case of the first two named the district court enjoined the commission from enforcing an allowable of 31 bbls. per day in the one-well Hittle pool in Cowley County. The owners of the well asked for a production allowable of 2,000 bbls. per day, claiming they had a buyer in Kanotex Refining Co.

CALIFORNIA

COMPULSORY REGULATORY STATUTES to govern production of crude oil do not exist in California, but in the past week production reached the lowest level attained since August of last year due to a more general compliance with curtailment. In the Elwood field operators approved the umpire's curtailment schedule and effective June 25 began reducing production. In the Lake View section of the Midway-Sunset field all operators with the exception of two agreed to reduce crude output still further. This is in addition to the usual 10-day production moratorium that operators have put in effect within the past few months.

NECESSITY OF STATE ACTION to stop wastage of natural gas was called to the attention of operators by a state official at a conference in Los Angeles. Representatives of operators in the Kettleman North dome, North Belridge, Montebello, Dominguez and Wilmington fields agreed to study the situation and report back within two weeks. Average daily waste of natural gas approximated 99,000,000 feet during the month of May.

The department adopted the policy that it would be best for oil companies to solve their own problems rather than have the state take arbitrary measures under the bill which probihits the waste of natural gas.

OKLAHOMA

PURCHASERS' REQUIREMENTS of crude oil in Oklahoma in July were made known to W. J. Armstrong, state conservation officer, at a meeting of buyers, producers and Mr. Armstrong Monday afternoon at Oklahoma City.

Late Tuesday Mr. Armstrong announced he would recommend to the corporation commission an allowable of 428,000 bbls. per day in July. The average allowable for June was about 422,000 bbls.

Mr. Armstrong made it known on Monday that he favors taking the stripper wells out of proration.

In a letter to purchasers and producers in Oklahoma Mr. Armstrong noted what Oklahoma had been doing in comparison to the Bureau of Mines estimate of consumer demand in 1937 and 1938. Mr. Armstrong said that Oklahoma's actual production had been away below the Bureau estimates for 1938 and the latter part of 1937. Continuing he said that per well average in Oklahoma, based on the order for June, is only 7 bbls. per well. "It is impossible for us to cut our production any more without interfering with the conservation of oil and the prevention of waste, and keep from forcing operators to plug small wells."

THE CONSTITUTIONALITY of Oklahoma's conservation law was brought before the United States Supreme Court last week on an appeal by Russell Patterson, owner of a royalty interest in six and a quarter acres of a 10-acre unit in the North Wellston area in Lincoln County. In that area drilling wells had been restricted to one well to 10 acres in accordance with the law. Patterson contended that in his case the law required him to share with owners of the remaining 3¾ acres in any royalty from a well drilled on the 6¼ acres in which his interest lies.

ILLINOIS

BILLS SEEKING TO REGULATE the production of oil in Illinois were introduced in the past week by Representative James Boyle of Chicago in the lower house of the Illinois legislature and were referred to committee.

The measures have met with such opposition that they may either die in committee or be reported unfavorably at this session. Many of the members are unfamiliar with the complexities of the oil business and appear to be giving ear to the slogan, "No proration until Illinois' production equals Illinois' consumptive demands." Representative Boyle told the committee that the bills were the result of an investigation by the Illinois budgetary commission made earlier this year. Representative Lewis of Robinson, center of the old Crawford County oil field, told the committee that his county felt no crying need for oil legislation. Illinois is one of the oil compact states but has no regulatory laws conserving the newly found wealth of petroleum uncovered recently in Clinton, Marion, Clay, Richland, Fayette and Jefferson counties.

ARKANSAS

THE PURCHASE OF 80,000 bbls. of back-allowable production from the Schuler field of South Arkansas, by Atlas Oil Co. of Shreveport, La., was made in the past week. The crude is being run to the Atlas refinery at Shreveport through the connections of Lion Oil Refining Co. of El Dorado, at a rate exceeding 10,000 bbls. daily.

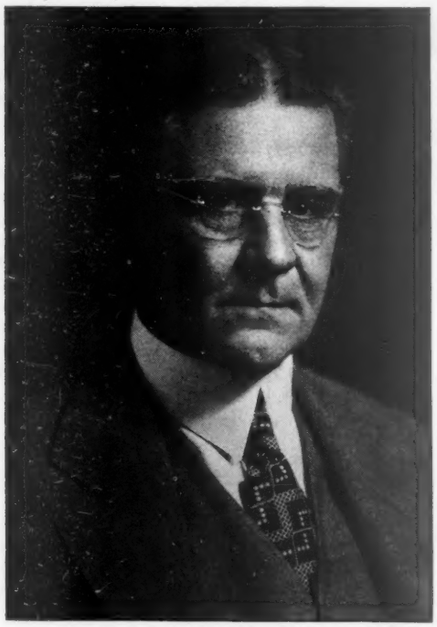
Obituaries

WILLIAM A. MURPHY, 60, for many years connected with oil development in Alberta, Canada, died recently.

GEORGE E. FOLEY, president of Murphy Oil Co. of California, died at Whittier, Calif., June 20.

C. A. MUNSEY, of Skiatook, Okla., district gauger for Stanolind Pipe Line Co., was stricken with paralysis on Wednesday, June 15, and died the following day.

ROBERT H. McELROY, 61, vice president of Standard Oil Co. (Indiana), died June 25 in an Evanston, Ill., hospital. Born in Chicago he attended Chicago schools and at 14 began work with the Chicago, Milwaukee & St. Paul Railroad as a messenger boy, rising to chief clerk



R. H. McELROY

in 1898. In 1906 he joined the Standard Oil Co. of Indiana as chief traffic clerk and in 1917 became traffic manager. He was elected a director in 1922 and vice president in 1927. His son, Robert H. McElroy, Jr., is associated with Pure Oil Co.

ROY B. BAILEY, 31, an employe of Phillips Petroleum Corp., and former resident of Tulsa, was killed June 24 when struck by an automobile near Odessa, Tex. He stopped to investigate another accident and was run down by another machine.

FRANK R. COATES, head of the oil and gas division of the Cities Service companies and president or vice president of a number of subsidiaries, died in New York June 27. He had been an executive and director of Cities Service Co. since 1913. He was at one time president of the Toledo Railways & Lighting Co. and an official of the Toledo Edison Co., absorbed by Cities Service. His early training was with the New York, New Haven & Hartford Railroad and Chicago & Great Western; Stone & Webster Engineering Corp., and Inter Ocean Steel Co.

JOHN E. CROSBIE, 76, Tulsa, died June 21 after an illness of three months. Born at Petrolia, Canada, he obtained his first job in the oil industry at 16, as a tool-dresser. In 1898 he was given a four-year contract by a major oil company to go to Sumatra, Dutch East Indies, and while there supervised the construction of a refinery and pipe line. Returning to the United States in 1902, he became an independent operator in the Spindletop, Sour

J. E. CROSBIE

Lake, Batson and Humble fields, Texas, in association with Walter Sharp. He moved to Tulsa in 1908 and became a large operator in the Glenn pool. In recent years he operated in the Texas Panhandle, Smackover, and throughout the Mid-Continent field. He was president of the Central National Bank in Tulsa until it was merged with the National Bank of Tulsa of which he was a director. At the 1938 International Petroleum Exposition in Tulsa he was honored by being chosen "Grand Old Man of Tulsa."

EDWARD M. CRONE, 46, secretary of the Texas Corp. and of several of its affiliated oil companies, died June 20 in the Lawrence Hospital, Bronxville, N. Y., of a cerebral hemorrhage which resulted from injuries received in a fall on June 17. He had been with the corporation 23 years. He was chairman of Texas Co.'s committee on employe benefits and the committee on accounting procedure and also was a member of the budget committee. He recently returned from an inspection tour of the company properties in Colombia.

Blank & Stoller

E. M. CRONE

Missouri Farmers President Opposes Gasoline Tax Raise

COLUMBIA, Mo.—William Hirth, president of the Missouri Farmers Association, announced his opposition to the proposed increase in the Missouri state gasoline tax in a letter to R. S. Brownlee, of Brookfield, president of the Citizens Road Association. Mr. Hirth requested removal of his name from the roster of the "so-called Missouri highway program planning committee."

Mr. Hirth charged the sponsors of the gasoline tax amendment, to be placed on the ballot in the November election, are seeking to "create a playhouse in the state constitution that will leave the state legislature without a voice in road matters."

Michigan Collects Millions From Oil and Gas Industry

SAGINAW, Mich.—More than $1,000,000 rolled into the state treasury in the past year in the form of tribute exacted from the oil and gas industry—entirely aside from real estate and personal taxes and taxes on corporations.

The state has approximately 280,000 acres of its own land under lease for gas and oil development, not to mention its severance tax interest in every barrel of oil, every foot of gas produced in the state. Last year the state collected $690,000 in bonuses and rentals on oil and gas lands on which it has given leases and in royalties on production from state-owned lands. An almost equal amount was collected in severance taxes, a 2 per cent levy on the well-head value of all gas and oil production. The state, however, gives up 60 per cent of the severance tax revenues to the counties and townships in which the oil and gas are produced, 20 per cent going to the counties and 40 per cent to the townships.

In three state land auctions held so far this year the state has realized approximately $60,000 in bonus. Its lease rental rate is 50 cents an acre, increasing to $1 an acre if drilling is not begun promptly, dropping back to 50 cents after operations begin.

New Refinery Being Planned

CALGARY, Alberta, June 25.—Announcement has been made by Leo L. Plotkins, general manager of Lion Oils, Ltd., that his company will erect a new refinery here. The plant will process Turner Valley crude and will have 1,000 bbls. daily capacity.

THE MARKETS*

CRUDE OIL: *Western Kentucky crudes, including new Birk City production in Henderson County, reduced 10 cents per barrel. Low current production levels in most areas have strengthened markets.*

REFINERY: *Eastern gasoline tankcar prices advanced with higher quotations in Mid-Continent well maintained. Natural gasolines stronger. Good demand for kerosene and distillates with improved gas oil market reported.*

TANK-WAGON AND POSTED DEALER: *Standard of Indiana advances all tank-wagon quotations on third-grade gasoline, kerosene and tractor fuel at subnormal points in seven states. Scattered advances reported in gasoline prices in other areas.*

FINANCIAL: *Oil stocks shared in general market recovery with some stocks recording gains of more than four points. Average of 30 stocks for week ending June 25: High, 29.21; low, 25.95; close, 28.97. Week ending June 18: High, 26.04; low, 25.05; close, 25.62.*

**Detailed information in market section.*

Federal Regulation of Natural Gas Industry Under the New Law

By JOHN D. HARRIS and ROGER S. RANDOLPH

Of great importance to the natural gas industry is the Natural Gas Act of 1938, popularly known as the Lea bill, which is designed to regulate the interstate transportation and sale of natural gas by placing these activities under the control of the Federal Power Commission. This act, H.R. 6586, seventy-fifth congress, first session, as finally amended, passed both houses of congress on June 14, and was sent to the President, who signed it June 21.

The Lea Natural Gas Act originated in congress as Title III of H.R. 5423, seventy-fourth congress, first session. Titles I and II of this bill contained amendments to the Federal Water Power Act and a draft of the Public Utility Holding Company Act of 1935. Title III, however, was eliminated from this bill before it became law. Similar bills designed to regulate interstate gas companies were introduced in the second session of the seventy-fourth congress as H.R. 11662 and H.R. 12680. Extensive hearings were held on these bills in April, 1936, and a favorable report was given by the committee on Interstate and Foreign Commerce, but no action was taken on them. In the first session of the seventy-fifth congress, there was introduced H.R. 4008, quite similar to the old H.R. 11662 and H.R. 12680, which after further hearings passed the house without a dissenting vote but was carried over by the senate into the next session. This bill was reintroduced as H.R. 6586, and with two minor amendments passed both houses on June 14 of this year.

The investment in the natural gas industry which will be affected at least in part by the new act is enormous. Valued at over $3,000,000,000, this industry serves more than 9,000,000 customers, domestic and commercial. There are more than 81,000 miles of gathering, trunk and distribution lines through which are transmitted each day more than 6,000,000,000 feet of natural gas.

Although natural gas has been in use for more than 50 years, the rapid growth of the industry occurred for all practical purposes after the advent of seamless pipe in 1926. Before that time the natural gas industry was essentially local, confined for the most part to the states in which gas was produced. In the last decade, however, markets have been expanded to include the large metropolitan areas, such as Chicago and Detroit. Thus, the interstate movement of natural gas increased more than 19 per cent from 1933 to 1934. Since that time there undoubtedly has been a similar if not greater increase.

With these vast economic changes, the problem of regulation by state commissions has become complex. As early as 1889, state utility commissions were regulating intrastate gas rates. With the great growth of interstate traffic, however, gas companies claimed that this portion of their business was beyond the regulatory power of state commissions. Several cases went to the Supreme Court of the United States on this question of the extent of the power of local commissions over interstate movements of gas, and as a result this power was sharply defined.

Where a company piped gas from Pennsylvania to a point of distribution in New York and sold such gas there itself at retail to local consumers, it was decided that the New York State Public Service Commission could regulate the rates charged to these consumers. The reason given was that the sale of gas at retail, though part of an interstate transmission, was local in its nature.[1]

However, when a producing company gathered gas from Oklahoma and Kansas, transported it into Missouri, and there sold and delivered it to a local distributing company which in turn distributed and sold it at retail to local consumers, it was decided that the wholesale prices which the producing company charged the local distributing company were not subject to regulation by the Public Utilities Commission of Missouri.[2] The reason advanced for this decision was that state regulation of this sort would be a direct burden upon interstate commerce, which must be free from state control. True, the commission could review the rates charged by the local distributing company, but these rates depended in large part upon the price charged by the producing company which was not subject to regulation at all. Thus did this Supreme Court decision free such interstate movements of gas from all state commission regulation.

Many gas companies adjusted their methods of doing business in order to fall within this decision and thus escape regulation. Thereupon state commissions by indirection attempted to do what they could not do directly. They began to look into the proper operating costs of local distributing companies in order to control the prices paid by these companies to the producing companies. Once again the Supreme Court rebuffed the state commissions by deciding that this was a direct invasion of the function of management and that local commissions could examine the reasonableness of prices paid by local distributing companies only when the producing and distributing companies were affiliated, i.e., under common control.[3] Thus a good deal of the interstate transmission of natural gas remained beyond the effective control of state regulatory bodies.

It was to remedy this situation and bring such interstate gas business under governmental control that the Lea Natural Gas Act was passed. This act declares that the business of transporting and selling natural gas in interstate commerce is affected with a public interest, and directs the Fed-

(Continued on Page 105)

Features of the Act

Federal regulation of interstate gas companies is another example of the trend toward regulation of the interstate phases of industry by federal agencies. Principal features of the Act are:

The Act directs the Federal Power Commission to regulate the transporting and selling of natural gas in interstate commerce. It does not specifically apply to retail sales in interstate commerce, to local distribution or to the production and gathering of natural gas.

The commission is given power to prescribe "just and reasonable rates."

Natural gas companies may not construct new lines into any market where natural gas is already being delivered by another gas company and may not acquire or operate any such facilities without a certificate from the commission.

The commission may order any gas company to extend its facilities into new markets or to improve its existing transportation facilities.

The commission may require natural gas companies to sell gas to any municipality and even extend its lines to do so.

State commissions may find themselves shorn of their power through development of the doctrine that intrastate rates are subject to federal control because they indirectly affect interstate rates.

Pipe Line Activity

Pipe Line and Oiled Road Being Constructed in Venezuela

The all-weather oiled road and oil pipe line, now being constructed between El Tigre (Oficina), Venezuela, and Puerta La Cruz-Guanta will undoubtedly be of great importance to a large area of eastern Venezuela. This road and pipe line are being constructed by Mene Grande Oil Co. for the purpose of providing an outlet to the sea for the oil in its concessions in the region near Oficina. The road will be somewhat over 200 kilometers long, and will provide rapid and dependable transportation facilities. The existing road is very bad, and is impassable during much of the year. The country traversed is flat plain, except for some low hills near the coast. The road should be finished in about 15 months.

While the population is now low in this section and the country unproductive, the activity in the oil fields, together with improved transportation facilities, should enable this section to support a considerably larger population than at present. The road will reduce the cost of imported goods for a rather large area dependent upon imports for many of the necessities of life. Freight will be able to move to Cantaura, Pariaguan, and other towns direct from Guanta over a good road, instead of by transshipment at Trinidad, up the Orinoco to Ciudad Bolivar, and thence to the various towns by roads frequently impassable and never good.

Barcelona, the city for which Guanta and Puerta La Cruz are ports, will tend to displace Ciudad Bolivar as the distributing center for the districts served by the road, and will undoubtedly become an important center. The increase in importance of Barcelona probably will not mean a decline in that of Cuidad Bolivar since the general increase of activity in eastern Venezuela, and the eventual exploitation of oil up the Orinoco and Apure rivers should more than balance the trade to Barcelona.

Pipe Line Companies Protest Valuations in Texas

AUSTIN, Tex., June 27.—The state tax board has begun hearings on protests of oil pipe line companies against valuations placed on their intangible assets. Sun Pipe Line Co., whose valuation was raised from $1,827,000 to $1,896,000, was the first to make an appearance.

Preliminary valuations fixed by the board on the state's largest pipe line companies were from 50 to 100 per cent higher than the 1937 assessments. These companies are Humble, Magnolia, Gulf, Shell, Sinclair, Atlantic and Texas.

The board will determine whether to revise preliminary valuations after completion of the hearings, which are docketed through June 30.

Shell Announces Personnel To Operate Gasoline Line

Completion of the new Shell gasoline pipe line from the company's refinery at Wood River, Ill., to Lima, Ohio, has called for a large number of changes in the company's crude oil pipe line, refinery and accounting personnel. R. B. High has been named as manager and S. S. Smith as general superintendent. Both have offices in St. Louis and will direct operations from this point. W. H. Shelley, formerly superintendent of the Illinois division of the company's lines, has been named field superintendent. The chief dispatcher's duties have been assigned to M. E. Overman. J. H. Hall has been appointed chief electrician, and R. F. Ballman, chief accountant.

Field headquarters will be located at Zionsville, a suburb of Indianapolis, through which the line will pass and where one of the major terminals will be established. Other terminals will be operated at Effingham, Ill.; Terre Haute, Ind.; Muncie, Ind.; and Springfield, Ohio. The men selected as superintendents at these points are C. R. Schulthies, F. D. Miller and J. R. Rodger, all from the Arkansas City plant, and F. R. Chase, formerly chief engineer of the Braman, Okla., gasoline plant.

Upon completion of the new gasoline line Shell will be able to make deliveries to these important points and at Lima, Ohio, it will connect with the gasoline pipe line system of Standard Oil Co. of Ohio. Previous announcements by the latter company indicate that through this arrangement Shell will be able to reach points as far north as Toledo, Ohio, and the Great Lakes by pipe line delivery.

Trestle being constructed for running 18-inch main gathering line across low portions of the K.M.A. field, Texas. This gathering system will serve the Phillips Petroleum Co.'s gasoline plant now under construction.

White Deer Construction Co. To Lay Gas Line at Cement

White Deer Pipe Line Construction Co. is preparing to lay 15 miles of 12-inch pipe near Cement, Okla., for Oklahoma Natural Gas Co. The pipe has been taken up by E. M. Campbell & Co., at Mildred, Kansas, near Iola, and is being shipped to Cement.

Texas Co. Laying Gas Line in Montebello, Calif., Area

Texas Co. is laying a 10-inch wet natural gas pipe line from West Montebello to East Montebello, California, a distance of 3 miles in order to handle gas produced by St. Helens Petroleum Co. and other operators in the West Montebello extension and a 10-inch dry gas pipe line from East Montebello to West Montebello in order to return dry gas to operators for use in drilling operations. St. Helens Petroleum Co. has been considering the erection of a natural gasoline plant in the Montebello field to process its production of gas but finally decided to approve a deal with Texas Co. whereby that company will do the processing.

Sheehan Construction Co. To Lay Line at Hammond

Sheehan Pipe Line Construction Co. has been given a contract to lay 7 miles of pipe for Stanolind Pipe Line Co. through the city of Hammond, Ind.; of this 6 miles are of 12-inch pipe and 1 mile is of 14-inch pipe.

Refinery Expansion

New Refineries in Idaho Are Getting Under Way

Two new refineries at Kalispell, Mont., and at Pocatello, Idaho, are slowly increasing their operations. Crude is moving to both plants but full volume is expected to be reached in some weeks.

A third refinery in the town of Kalispell will be in operation within 10 days. The company is known as Flathead Refining Co. and is building a topping plant with a capacity of 300 bbls. per day. Officers include Blanche B. Haugen, of Kalispell; O. A. Nepstad, of Ferdig; A. H. Harvey, of Helena; Dr. E. C. Bratsberg, of Kalispell; Harold Haugen, of Sunburst; Walter A. Ryder, of Kalispell, and James A. Burnett of Kalispell. Mr. Burnett, who was formerly with Aronow refineries at Kalispell, is manager. Kevin crude will be used.

New Illinois Refinery to Start Operating July 1

The Bell Oil & Gas Co. of Tulsa, Okla., announces it will handle the sale of refined products made by the Power Oil & Refining Co. of Centralia, Ill.

The Power plant has just been completed and is making test runs. It will start deliveries of gasoline on July 1. Loading racks have been built from which tankcar and truck shipments may be made.

The plant has a 2,000-bbl. capacity and has its own pipe line outlet through the field. In addition to refining gasoline, kerosene, distillate and fuel oils, the Power company will also market through the Bell Oil & Gas Co. crude oil from Centralia and adjoining fields.

Bell will station two representatives in Centralia, and sales will be handled by these representatives at this point. The Bell also maintains a sales division in Chicago, Ill., which will specialize on fuel and gas oil sales to the industries in Illinois, as well as the sale of fuel oil to the drilling rigs in the area.

Pure Oil Will Expand Along Great Lakes

Pure Oil Co. and the Western Oil & Fuel Co. are jointly building a terminal on Lake Superior near Superior, Wis., with storage capable of holding 345,000 bbls. of gasoline, kerosene, burning oils, tractor fuel and lubricants. Construction is expected to be completed by August 15.

Plans for Construction of Refinery at Minot, N. Dak.

Plans for the construction of a $300,000 refinery at Minot, N. Dak., have progressed to filing of articles of incorporation for a company known as Dakota Refining Co., of Cut Bank, Mont. Officers are Wilfred

Nadeau, president; J. F. McGurren and H. F. Patterson, vice presidents; Cleveland H. Hall, secretary, and A. B. Cobb, treasurer.

Natural Gas News

Union Names Lester Metcalf Director of Manufacturing

Lester Metcalf, a graduate of Pomona College, California, and Massachusetts Institute of Technology and for the past several years manager of refineries of

Wilshire

LESTER METCALF

Union Oil Co. with offices in Los Angeles, has been appointed director of manufacturing succeeding R. E. Haylett, who recently died suddenly.

Great Falls Men Propose Refinery at Williston

WILLISTON, N. D.—A proposal to establish a 4,000-bbl. refinery here was made to directors of the Chamber of Commerce by C. A. Teeter and W. A. Jaynes of Great Falls, Mont. Indorsement of the project was withheld by the directors pending approval of the state securities commission.

McColl-Frontenac Expansion Unlikely in Western Canada

TORONTO, Ontario, June 25. — It seems unlikely that the closer relations recently established between Texas Corp. and the McColl-Frontenac Oil Co. will result in an early extension of McColl-Frontenac refining operations into the Canadian West.

Rumors have been current that the company planned to build a new western refinery to utilize Turner Valley crude. Heretofore its operations have been largely confined to Ontario and Quebec, with large refineries at Toronto and Montreal. McColl-Frontenac sales in western Canada last year approximated only 10,000,000 gallons, while Texas Corp. sales amounted to around 6,000,000 gallons imported from Montana.

Some years ago the McColl-Frontenac company investigated the possibilities of establishing refinery facilities in the prairie provinces and the matter has been under consideration at various times since then. At the moment, however, the company is concentrating on plans for intensive marketing development in Ontario and Quebec, and deferring steps looking to any western expansion.

Carbon Black Freight Rates May Be Readjusted

WASHINGTON, D. C. — Contending carbon black producers are entitled to reasonable rates on their traffic regardless of the financial conditions of railroads, an I.C.C. examiner has reported to the commission that existing rates on the uncompressed and compressed product would be unreasonable and recommended reductions.

The report was on the complaint of National Gas Products Association against railroads transporting the commodity from various southwestern producing points to eastern and middle western destinations. Complainants asked 30 and 27.5 per cent of first-class rates on the two classes of carbon black, but the examiner found that 35 and 32.5 per cent would be proper.

This would effect reductions from present fifth class rate of 78 cents per 100 pounds from Monroe, La., district to Chicago, of 3 cents on uncompressed and 9 cents on compressed carbon black, with similar reductions along the line. From Amarillo, Tex., present 91-cent rate on both products would be cut to 85 cents and 79 cents, respectively, to Chicago.

The examiner also urged minimum carload requirements be changed from 40,000 to 30,000 pounds, and that in establishing new recommended rates, charges from Amarillo group should be considered base rates instead of Monroe group as at present.

The report said that rates in the past were not unreasonable, but that finding should not indicate that rates would not be unreasonable in the future.

Gas Exhibit at Golden Gate International Exposition

An invitation to participate in the Cooperative Gas Exhibit at the Golden Gate International Exposition has just been mailed to gas appliance manufacturers. The exhibit will occupy 10,000 square feet in the Homes and Gardens Building adjacent to the main building entrance. Gas appliances will be shown installed in natural situations each of which will be arranged in cooperation with the participating manufacturer.

R. E. Fisher, chairman of the exhibit committee, has announced that nearly $93,000 has been pledged to date from utilities and supply manufacturers. The committee's goal is $140,000. The companies whose contributions make up the total to date are Pacific Gas & Electric Co., Southern California Gas Co., Southern Counties Gas Co., Coast Counties Gas & Electric Co., San Joaquin Light & Power Corp., Santa Maria Gas Co., Southern Oregon Gas Corp., Honolulu Gas Co., Ltd., El Paso Natural Gas Co., Sierra Pacific Power Co., Sprague Meter Co., Pacific Meter Works of American Meter Co., and Reliance Regulator Corp.

Revenues of Gas Companies Showed Decline in April

Revenues of manufactured and natural gas utilities totaled $68,791,900 in April, a decrease of 6.8 per cent from the figure of $73,806,400 reported for April, 1937.

Total sales of manufactured gas for the month were 31,188,600,000 feet, a decrease of 2.6 per cent. Natural gas utility sales for the month amounted to 105,608,300,000 feet, a decrease of 15.3 per cent.

Natural gas sales for domestic purposes showed a decrease of 12.5 per cent for the month, while industrial sales declined 19.1 per cent.

Decision Expected Soon in Panhandle Sour Gas Case

AUSTIN, Tex.—A decision in about two weeks on validity of the Railroad Commission proration order for the Panhandle sour gas area was indicated by a three-judge federal court which heard testimony and arguments here in a test case.

The suit was brought by F. C. and E. P. Henderson, who contended that under the order they were not allowed to produce sufficient gas to fill a contract with a carbon black plant near Sanford.

V. E. Cottingham, chief engineer for the commission, testified the Henderson wells had been draining surrounding properties.

Occupation Taxes on Gas Company Upheld in Texas

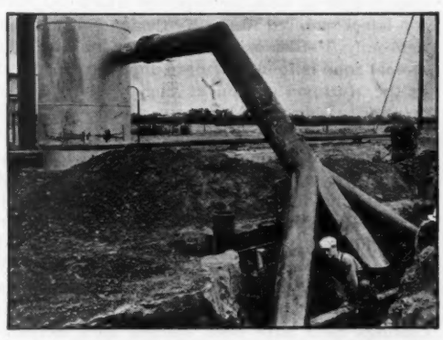
AUSTIN, Tex.—The Austin Court of Civil Appeals upheld the right of the state to collect occupation taxes and penalties from the Utilities Natural Gas Co.

The company has gathering lines in Refugio and Victoria counties and delivers all its gas to one customer, the Central Power & Light Co., of Victoria. It contended its business did not come within terms of the statute. The Appellate Court sustained a judgment by a Travis County district court.

New Gas Purification Plant For the Otis Field, Kansas

The Producers Gas Co. of Hays, Kans., is erecting a Girbotol plant for the removal of H_2S from natural gas. This is the third Girbotol plant to be built in the Otis field. When it is completed all of the gas drawn from this field by the five pipe line companies operating there will be purified by the Girbotol process.

Natural Gasoline



Header construction from gathering system taking gas from wells in opposite directions. Installation being made at Phillips Petroleum Co.'s gasoline plant now under construction on the west side of the K.M.A. field.

Build Recycling Plants To Serve Eastern Texas

Byrd-Frost, Inc., of Dallas is nearing completion of their stage separation and recycling plant in the Long Lake field. Injection well has been finished, and the 500-horsepower recycling unit installed. Operations will begin about July 15.

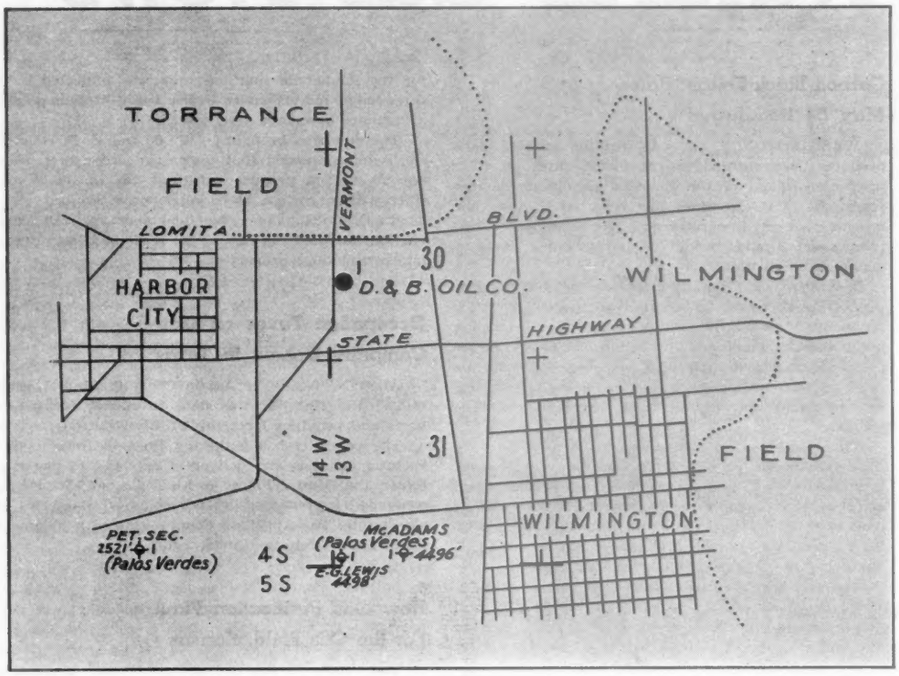
H. W. Bass of Dallas is negotiating and planning to construct a somewhat similar type plant in the Long Lake field.

American Liberty Oil Co. is conducting tests and considering the construction of a stage separation and recycling plant in the Grapeland gas area of Houston County. Wells in this area have been shut down for want of a market outlet or means of disposing of the residue gas.

POTENTIAL FIELDS

(Continued from Page 23)

tends to indicate it is beyond the possibly productive limits. Several years ago Mohawk Petroleum Co., subsequently acquired by California Petroleum Co. and then by Texas Co., drilled a wildcat in section 34-20-16 but abandoned it as a duster at 4,027 feet.



D. & B. Oil Co. discovery southeast edge Torrance field between Torrance and Wilmington

One of the most interesting features in connection with the pending completion of No. 2 Gatchell is the comparatively shallow depth, 6,711 feet, at which the Avenal zone was logged in this area compared with the depth at which the horizon is encountered in the Kettleman North Dome field only 7 miles away. At Kettleman Hills, the Avenal zone is found at approximately 10,500 feet in the Huffman section of the structure in the extreme western end. Due to the proximity of No. 2 Gatchell to the eastern end of the East Coalinga field there is a possibility the Avenal zone might extend into the original section. At any rate the discovery of a new field in the Guijarrel Hills area may have a tendency to stimulate drilling operations in the East Coalinga field as this anticline traverses the latter field and may be expected to yield deeper production. Operators holding potentially productive acreage in the East Coalinga field have been holding back development for a number of years but may now find it necessary to undertake drilling or deepening operations. If the new Guijarral field extends southward it may not lead to new deep drilling in the East Coalinga field for some time.

New Field in Los Angeles Basin

Whether D. & B. Oil Co. has discovered an oil field in the Lomita section of Los Angeles Basin about 1 mile south of the eastern tip of the Torrance field and west of the Wilmington field will not be definitely determined until additional drilling has been undertaken. The discovery well, in section 30-4-13 at 253rd Street and Vermont Avenue within the city of Los Angeles, was completed flowing 710 bbls. of 29.1-gravity oil and 350,000 feet of gas per day through a 40/64-inch bean from 5,275 feet. It was finished with an 8⅝-inch water string cemented at 5,120 feet and 180 feet of 5½-inch liner including 178 feet of 80-mesh perforations landed on bottom. The well was completed under supervision of O. T. Deal, superintendent, and Steven Dunlap, petroleum engineer. Location for a second well has already been selected by the company and plans call for early work. Due to the proximity of this well to the outer limits of production in the Torrance field it is difficult to state definitely that D. & B. Oil Co. has opened a new field although everything points in this direction as there is very little similarity between structural conditions at Torrance and in the new Harbor City area.

COTTON VALLEY

(Continued from Page 27)

and the crude, once produced, can be moved in lines by cutting with distillate, if necessary.

Of particular interest in examining the crude is the wax distillate fraction, which on refining gives a light oil with a high viscosity index. The 28 per cent wax distillate cut was dewaxed, using a mixture of benzol and acetone and then contacted with clay. The tests on the finished product are shown in the refined wax distillate analysis in the accompanying table.

The fraction is seen to be very light with respect to viscosity. A low yield of 10.5 per cent is attributed to the fact that the treating was done on a small sample, causing a greater loss than would be sustained on plant operation. The temperature-viscosity relationship shows a viscosity index of 145 by extrapolation. This is generally misleading, however, for a light oil.

The analyst also noted the residue could be included in the lube cut, as it shows very little asphalt and a surprisingly good color for bottoms.

Another analysis of the crude showed a small yield of high viscosity index oil. The residue left in the still was treated and dewaxed to give a 5 to 10 per cent wield of S.A.E. No. 30 bright stock.

On another test, the crude was steam distilled, leaving a residuum of 22 per cent. The bottoms cut was then dewaxed and treated with 20 pounds of sulfuric acid per barrel of oil contacted with clay. Analysis of the finished product is shown under long residuum from steam distillation.

About 70 per cent of the charge of residuum would be a fair estimate of the yield of finished lube oil. Actual yields obtained after dewaxing and treating on a small laboratory scale are misleading as to the expected yields to be obtained.

CRUDE ANALYSIS

Cotton Valley, Webster Parish, Louisiana
Stanolind Oil & Gas Co. No. 1 Pardee, Section 36-21-10

Crude

Gravity	41.0
Flash	B.R.T.
Vis. @ 50° F. (S.U.)	46 sec.
B.s.&w.	nil
Sulfur	0.215%
Cold test	80° F.
Color	Green (1½ TR)
I.B.P.	101° F.
Base	Paraffin

Hempel Distillation (atmospheric pressure)

Vapor temp.	% Over	A.P.I. cut	Gravity overhead composite
100	5	74.0	74.0
214	10	61.1	66.0
270	15	53.7	61.5
338	20	50.1	58.4
404	25	47.2	55.8
458	30	44.7	53.7
494	35	42.7	52.1
528	40	41.0	50.5
562	plus 11 cc.	...	50.5
572	..	...	...

Yields (gas oil and heavier by vacuum distillation)

Gasoline	18.0
Kerosene	7.7
Gas oil	6.8
Heavy gas oil	30.0
Wax distillate	28.0
Fuel oil	9.0
Loss	0.5
	100.0

Estimated Topping and Cracking Yields

Gasoline (straightrun)	11.0
Kerosene	21.0
Gasoline (cracked)	42.0
Fuel oil	19.5
Gas and loss	6.5
	100.0

Refined Wax Distillate

S.A.E. No.	10
Gravity	31.3
Flash, °F.	420
Fire, °F.	475
Vis. @ 100° F., S.U., sec.	147
Vis. @ 210° F., S.U., sec.	46
Color, TK	4½
Pour point, °F.	25
Yield, per cent	10.5

Long Residuum From Steam Distillation

Gravity	23.2
Flash, °F.	440
Fire, °F.	510
Vis. @ 100° F., S.U., sec.	420
Vis. @ 210° F., S.U., sec.	60
Viscosity index	102
Color, TR	4

Breakdown Analysis

	Gasoline	Gasoline 15% C. H.	Kerosene	Gas oil	Heavy gas oil	Wax dist.	Residue
Gravity	59.5	61.0	47.0	42.0	38.3	35.3	12.8
I.B.P., °F.	118	97	362	444	532	...	...
10 per cent	172	144	394	472	570	...	...
20 per cent	197	163	412	477	585	...	...
30 per cent	216	190	427	482	596	...	...
40 per cent	233	218	435	488	609	...	...
50 per cent	250	243	444	498	623	...	...
60 per cent	265	261	450	506	638	...	...
70 per cent	284	282	458	515	654	...	...
80 per cent	300	298	468	526	674	...	...
90 per cent	326	325	480	541	700	...	...
E.P.	400	398	516	592	714	...	...
Recovery, per cent	98	97	98	98	95	...	...
Doctor	sweet	sweet	...	...	...	...	...
Corrosion	OK	OK					
Flash, °F.	...	...	†136	•210	•295	•430	•585
Fire, °F.	...	...			•320	•490	•625
Color	25	26	25	straw	15 TR	9 TR	...
Octane No. (C.F.R.)	53.5	56	...	...	...	...	...
Lead required for 71 C.F.R., cc.	...	1	...	...	...	...	...
Aniline point, °C.	42.8	...	61.8	70.8	...	...	...
Diesel index	...	...	...	66.7	...	...	...
Vis. @ 100° F., S.U., sec.	...	...	...	...	48	...	...
Vis. @ 130° F., S.U., sec.	...	...	...	...	...	82	...
Vis. @ 210° F., S.U., sec.	...	...	...	...	...	48	...
Vis. @ 122° F., Furol, sec.	...	...	...	...	...	...	140

†T.C.C. •c.o.c.

Service on New Fields

CANAL FIELD, CALIFORNIA

Compiled by The Oil and Gas Journal, June 17, 1938

Approved name:

Canal field, so named because a dry hole drilled prior to the discovery of the field was located near an irrigation channel. This test was Shell Oil Co. No. A-21 Kern County Land, which was drilled less than a mile north and west of Ohio Oil Co.'s discovery well. The name given the Shell test was later applied to the entire area. The field is also referred to as the "Strand" field or "Strand area."

Location:

The Canal field is in San Joaquin Valley 12 miles west and 3 miles south of Bakersfield. Development to date has been confined to sections 13 and 14; Township 30s, Range 25e. The area is served by good hard-surfaced roads and is easily accessible from Los Angeles, 130 miles south.

Type of country:

Typical San Joaquin Valley terrain surrounds the field. It is flat or very gently rolling grazing land with scattered trees. Average elevation is 320 feet in the field. The Kern River lies 1 mile south. While the area has low rainfall throughout most of the year, the river sometimes reaches flood proportions during the spring, and construction in the field should be designed to withstand high-water conditions.

Regional geology:

The field lies close to the synclinal axis of the Great Valley, a major structural feature which includes both the Sacramento Valley and the San Joaquin Valley, and which is bordered by the Sierra Nevada and the Coast ranges. The field is situated approximately 25 miles from the southern extremity of the Great Valley. The central portion of the San Joaquin Valley, in which the Canal field and five other fields have been discovered in the last two years, is covered by alluvium at the surface. Tertiary and Cretaceous sediments crop out around the valley borders, and these strata are believed to have a total thickness of 25,000 feet or more in the central portion of the valley.

Surface geology.

Due to the blanket of alluvium on the valley floor, no surface geology of a structural nature is possible. The Canal field, like the other central-valley discoveries, is a result of successful seismological work.

Development of field:

After extensive geophysical survey work, Ohio Oil Co. located the test in July, 1937, which was to discover the Canal field. The same company had previously drilled a dry hole 2 miles to the southeast, and Shell had made a similar test about 3,000 feet west and slightly north of the selected location. In spite of these unfavorable signs, drilling was undertaken with optimism because of the favorable seismograph indications, and because of the fact that the prolific Stevens sand had been found in both the Ten Section field, 3 miles to the southeast, and the Greeley field, 6 miles to the northeast.

The discovery well, No. E-3 Kern County Land, was completed on November 23, 1937, for an initial flow of 2,112 bbls. of clean 37-gravity oil through a 1-inch choke. Depth of this well was 8,175 feet. The top of the oil sand was logged at 8,095 feet, and the bit was still in productive sand when the drilling was concluded.

Immediately following completion of the discovery well, an offset was started by Shell Oil Co. to the northwest, which was designated as No. 72 Kern County Land. To date seven wells have been completed, four by Ohio Oil Co. and three by Shell Oil Co. Each concern has one drilling well.

Lease holders:

While the limits of the field have not been determined, it is practically certain that the productive acreage will all be controlled by Ohio, Shell, and Standard Oil Co. of California. If the field extends in a southeastern direction, as is expected, the discovering company will have the greater part of the field. Shell Oil Co. holds extensive acreage to the north and west of the present wells, but the possible extent of the field is limited in this direction by the dry hole, No. A-21 K.C.L.

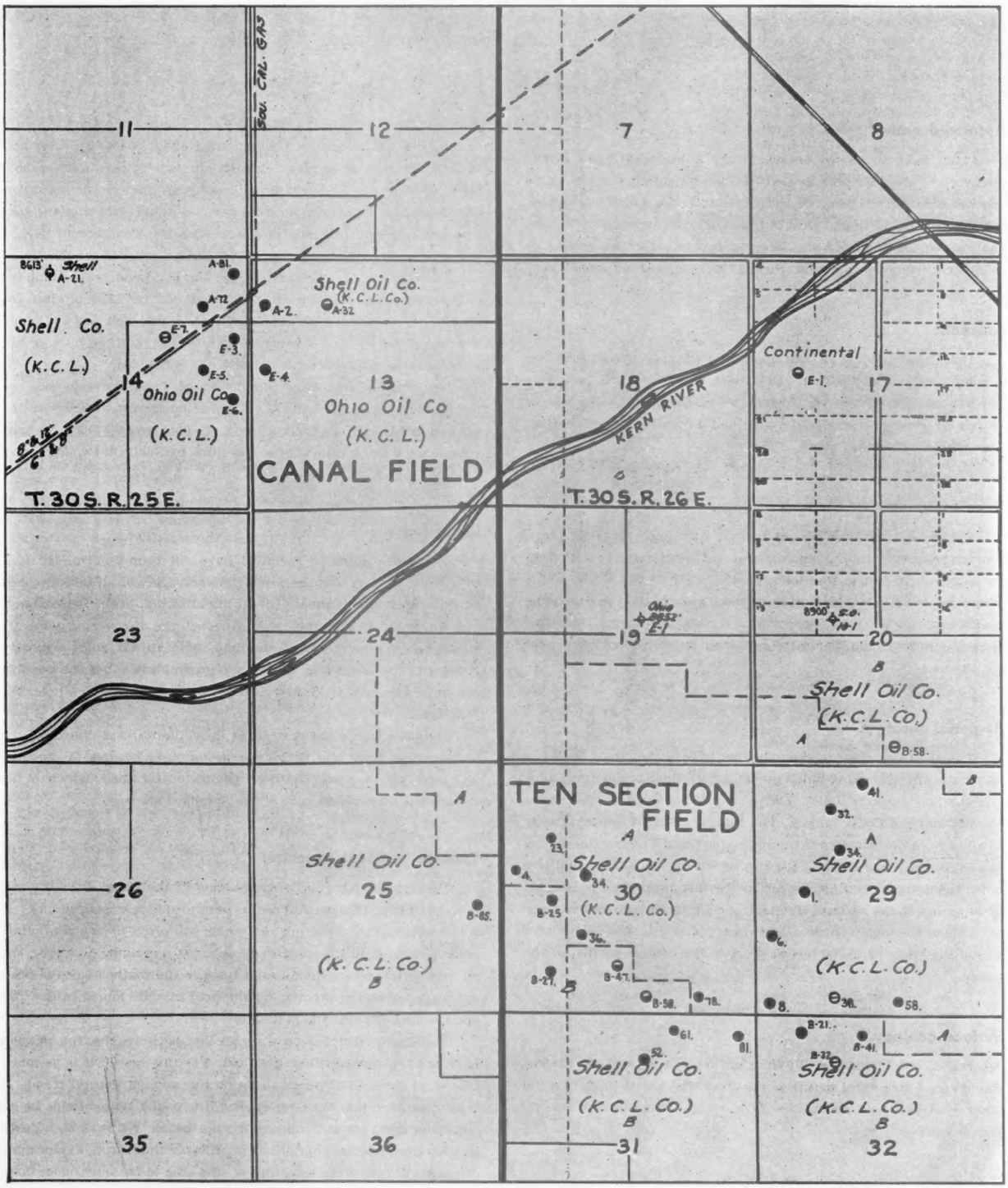
Standard Oil Co. owns 80 acres in fee immediately north of the wells, where their Rio Bravo pump station is located. A diagonal offset to this property has been completed by Shell, which is believed to prove at least part of the Standard acreage.

Type of geologic structure:

To date only the northwest portion of the Canal structure has been explored. This portion can be described as a structural nose. It is believed that the structure as a whole will prove to be an anticlinal dome elongated in the northwest-southeast direction. However, the oil may be trapped against a fault lying to the southeast of the present wells, or on the other hand the pool may be joined to the Ten Section pool, though this is unlikely.

The Canal field lies on a direct line between the Ten Section field and the Buttonwillow gas field. For this reason it is assumed that these three discoveries all lie on the same structural trend. It is also assumed that the Greeley, Rio Bravo, and Wasco fields lie on a parallel trend about 7 miles to the northeast. While there is justification for these assumptions, it is probable that future exploratory drilling will reveal the structure of this area to be much more complicated than this interpretation suggests. Perhaps it is misleading to expect San Joaquin Valley pools to occur along definite trends, as was the case in the Los Angeles Basin. The basin pools were localized

Service on New Fields



The Canal field of Kern County, California, showing Ten Section field and dry holes of vicinity

Service on New Fields

along a zone of faulting, whereas the valley-floor pools appear to be related only to folding.

Stratigraphy:

The productive sand of the Canal field is the lithologic equivalent of the Stevens sand of the Ten Section field, and there is every reason to believe that it is also the stratigraphic equivalent. It is found in the upper middle Miocene section at depths varying from 8,090 feet to 8,170 feet. No Canal wells have penetrated the entire sand section, though some have drilled 170 feet in the sand body. The sand is similar in all respects to that cored in the Ten Section wells. It is a good porous sand which is interbedded with some shale streaks. More than 50 per cent of the body consists of sand. So far drilling has revealed no evidence to show that sedimentation has played a part in localizing on the occurrence of oil on the structure. That is, the sand is persistent on the structure, as in the Ten Section field, and not "spotty," as at Greeley.

Water level:

One well was drilled deep enough in the Canal field to produce bottom water. The well was plugged back, and the test was not considered to be a true indication of the water level in the structure.

Gas cap:

Past drilling has disclosed no evidence of a gas cap above the oil, although it is believed that the discovery well is located near the apex of the structure.

Gas-oil ratios:

The Canal wells flow with a very small gas-oil ratio compared with most deep wells. Ratios run from 500 to 700 feet per barrel, and it is quite possible that these would be noticeably reduced if the wells were made to flow at a higher rate, and for fewer hours per day.

Curtailment:

Ohio Oil Co. and Shell Oil Co. have furnished an excellent example in regard to curtailment in the Canal field. Both concerns have rigidly followed the allotments of the Central Committee of California Oil Producers. Since all wells in the field are capable of producing more than 2,180 bbls. per day, they are all entitled to the maximum allowable, which is 350 bbls. per day per well. Recently this maximum was reduced from 400 bbls. per day. At the end of April the entire overproduction for the Canal field amounted to 82 bbls.

Rate of development:

Due to the oversupply of oil, drilling in the Canal field is being held down to the minimum. Shell and Ohio are each using one string of tools, although the extensive proved acreage controlled by each would suggest the use of a dozen strings. Standard Oil Co. has made no immediate plans for drilling in the area, although a diagonal offset to their pump-station property is producing.

Spacing program:

A 20-acre spacing program has been agreed upon, which is in keeping with practice in other deep San Joaquin Valley fields.

Casing program:

A typical casing program makes use of 20 feet of 18⅝-inch conductor pipe, which is cemented with 25 sacks. Seamless 11¾-inch casing is cemented at 1,200 feet with 775 sacks. Above the sand, 7-inch 30-pound casing is cemented with 600 sacks at an average depth of 8,050 feet. A 4¾-inch liner is hung through the sand. The liner has 100-mesh slots and is made of aluminum alloy. When deepening or other well changes become advisable, no trouble will be encountered due to inability to remove the liners.

A new practice is being inaugurated by Ohio Oil Co. in installing liners, which is expected to be helpful when it becomes necessary to plug back the wells due to water encroachment. A blank, or unslotted, section is left in the liner 20 or 30 feet above its lower end. In plugging back the well, the cement will be pumped in through tubing. A swab rubber will be used to pack off between the tubing and liner in the blank liner section. The cement will be forced through the lower perforated section and up behind the blank section. The tubing will then be raised in order to fill the inside of the blank section with cement.

Drilling practice:

Drilling equipment used in the Canal field is described in the San Joaquin Valley as "ordinary steam rotary equipment," though a short time ago it was considered large deep-drilling equipment. The discovery well was drilled by an exceptionally large and up-to-date rig which had a 14 by 14 drawworks engine and a 12 by 12 vertical power-pump engine. After the discovery, this rig was moved to the Buena Vista Lake area, where it drilled the discovery well of the new Buena Vista field.

Before cementing the water string above the sand, the wells are drilled to the selected completion depth. In cementing the casing a tail piece made of aluminum alloy is used on the bottom of the cementing shoe to conduct part of the slurry down below the casing seat. In this manner a bridge is placed, which is required in making the water shut-off test for the state mining bureau.

Production practice:

All Canal wells flow through 2½-inch tubing. The surface chokes are regulated to produce the daily allowable of 350 bbls. in 24 hours.

Prospects:

It is believed that between 20 and 50 wells will be drilled in the Canal field in developing the Stevens sand. The extent of the productive area is unknown, but will probably constitute an area of at least a square mile, and perhaps more. Chances are considered excellent for the discovery of Rio Bravo sand production, but it is doubtful if a deep test will be made before Stevens sand production becomes unprofitable in one or more wells.

INTERNATIONAL NEWS

Mexico Striving to Enlist Latin America in Oil Deal

Latest development in the Mexican situation is the starting by that country of an active campaign in Latin America promoting a doctrine of standing together to eliminate "economic imperialism." The idea is an effort to capture the Latin American oil market for Mexico so far as it can supply the demand. The urging of other Latin America countries to throw off the yoke of "economic imperialism" was launched by President Cardenas who addressed Cuba via radio on the aims and ambitions of Mexico. Agents representing the Mexican government have been dispatched to practically every Latin American country in the dual capacity of oil salesmen and propaganda ministers.

The sales efforts are meeting with some success, but, based on available information, the production and shipments are at least 50 per cent below the rate prevailing under private company management. Most of the oil sold by the Mexican government so far has gone to Germany and Italy. Part of the oil moving to Germany is delivered under a bartering arrangement in exchange for steel pipe and other equipment. So far Italy has paid in cash, but the newspaper Novedades reported last week that Italy had agreed to take $8,000,000 worth of Mexican oil partly for cash and partly for silk.

The Mexican supreme court has agreed to hear an appeal of the oil companies from a lower court decision which upheld the expropriation. There was little hope among representatives of the companies, however, that the supreme court will grant any relief since it was this body that ruled against the companies in the labor dispute which precipitated the expropriation.

Oil companies were accused anew last week of flouting laws of Mexico by Vincente Lombardo Toledano and Alejandro Carillo, who spoke in New York at the International Industrial Relations Institute at Town Hall. Senor Toledano, who is president of the Confederation of Mexican Workers (C.T.M.) and Senor Carillo, head of the Workers University in Mexico City and secretary of the C.T.M. Committee on Foreign Relations, arrived in New York after attending the convention at Oslo, Norway, of the International Federation of Trade Unions.

The two Mexican labor leaders likened the program of President Cardenas to the New Deal and disclaimed accusations that it contemplated the "sovietizing" of the country. Senor Carillo said the Mexican government is struggling to liberate the country from "the pernicious influence of foreign imperialism."

Frank Kluckhohn, New York Times correspondent in Mexico, recently completed an inspection trip of the oil fields. He reported that Mexico shipped 1,285,000 bbls. of petroleum from Tampico in April and May compared to a monthly average of 1,454,000 bbls. in 1937 under private company ownership. The Times correspondent said Mexican officials are maintaining secrecy over the destination of oil shipments. He also wrote that the Mexican government claims that all the petroleum it is shipping abroad comes from the properties the government held before expropriation.

"But two Italian flagships have both loaded asphalt," Mr. Kluckhohn wrote, "at the former Sinclair Pierce refinery, and this asphalt came from crude produced in the formerly British-owned Panuco field. Moreover, the movement of oil from the ex-British Poza Rica field to Tampico for export seems to controvert this claim. Nevertheless, United States consuls are witnessing signatures that the oil comes only from nonexpropriated properties."

An unconfirmed report was received from Mexico last week that one of the large domestic companies of this country sold 10,000 gallons of bright stock lubricating oil to the Mexican government. This report, if correct, marks the first break in the ranks of oil companies to decline business with the Mexican government. The government has made unsuccessful efforts to produce tetraethyl lead fluid for improving the octane rating of its gasoline. Motor fuel obtainable from most Mexican crude by straightrun has a low octane rating, averaging around 47. By cracking, 60-octane gasoline can be produced which is being used currently to blend with straightrun material, but the octane rating remains low and could hardly be considered an acceptable product even in the Latin American market where standards are not as exacting as in the United States.

During the first week of June Mr. Kluckhohn reported that the rich Poza Rica field, expropriated from the British-owned El Aguila (Shell) company, produced a daily average of 33,518 bbls., compared to output of about 60,000 bbls. under private management. He said the payroll had declined from 70,000 pesos to about 52,000 pesos per week for employes working on a daily basis. About 60 "transient" employes have been dropped from the payroll. Most of the loss incurred by workers is in the elimination of overtime.

Since the government took over operation one Poza Rica well has been plugged to retard intrusion of salt water, Mr. Kluckhohn reported.

Donald R. Richberg, attorney for Standard Oil Co., W. S. Farish, president, and T. R. Armstrong, its special representative, discussed the Mexican oil situation with Secretary Hull last week.

Josephus Daniels, U. S. ambassador to Mexico, before returning to his post, said he is hopeful that by cooperation of both the Mexican and United States governments satisfactory arrangements can eventually be made with reference to all pending matters.

Refinery in Portugal to Be Owned By Rumanian Company

Construction of a complete modern refinery in Portugal cost of which is estimated at $1,500,000 is one of the objectives of a recent agreement concluded between the government and "Redeventza" Societate Anonima Pentru Exploatarea Si Comertul Produselor Subsolului, the independent Rumanian concern.

Under the agreement, "Redeventza" in conjunction with Portugese interests, is granted exclusive rights for oil refining over a period of 10 years, although the refining license is valid for 20 years and an option for extension under certain conditions is provided. To provide the facilities required to carry out terms of the agreement a company is being formed, called the Soc. Concessionaire pour le Raffinage du Petrole en Portugal with capital of about $700,000, a third of which is to be provided by the government.

The refinery which is to be located about 25 miles from Lisbon on the River Tage is to have a daily capacity of 4,000 to 4,500 bbls. Plans call for a plant capable of producing aviation gasoline, motor gasoline, fuel oils, lubricating oils and asphalt. Completion of the refinery is projected for the summer of 1939. Pending completion of the plant storage tanks will be provided and accumulation of petroleum started. The new company combining Redeventza and Portugese interests is reported to have obtained a guarantee to at least 50 per cent of the national market when its refinery is completed. Internal petroleum prices are to be regulated by a new government bureau on lines of the French Office Nationale des Combustibles Liquides.

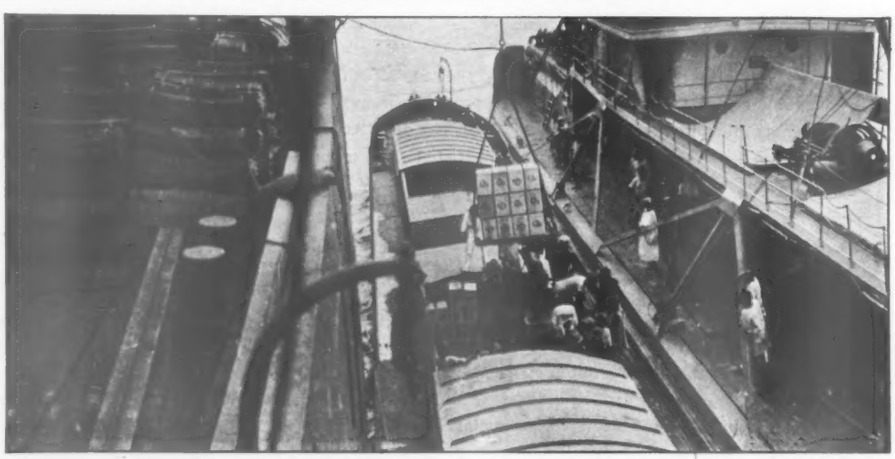
Direct Passenger Airline To Venezuela Opened

The Pan American Airways has inaugurated direct passenger service between Miami, Fla., and Venezuela. Fourteen passengers were carried on the initial northbound flight from Maracaibo, Venezuela, a 570-mile overwater hop to Port-au-Prince, Haiti, and a 750-mile jump from there to Miami, requiring about 10 hours.

Petroleum Possibilities Found In Eastern Bengal

Discovery of structural conditions and other evidence indicating petroleum possibilities in eastern Bengal has been reported by the Department of Geological Survey, Government of Tripura State. In revealing its findings, the Department of Geological Survey reported: "There are several parallel ridges about 10 miles apart running north-south with suitable anticlinal structures, numerous gas seepages and saline springs which are indicative of oil below. From many considerations it has been concluded, that workable oil deposits will be within 3,000 feet. There are exposures of fossiliferous 'coal measures' or 'Pegu' series with numerous thin seams of coal."

Several applications for prospecting licenses for petroleum and natural gas are reported to have already been received by the authorities. Details of the investigations conducted by the department and also samples are obtainable from the geological department of Tripura State, Agartala, Bengal, according to the U. S. Department of Commerce.



Unloading petroleum products from an ocean ship into a lighter on the Niger River, Africa. The lighter will be towed many hundred miles up river by the stern-wheeler alongside

ENGINEERING and OPERATING

In This Issue

A SHOT-HOLE RECORDER MEASURES THE WIDTH OF CAVITY IN WELL

By R. B. Bossler ..... *Page 44*

A device has been developed which measures the radius of drilled or shot holes in wells. This device has been found to be practicable and while not perfected is in routine use. The mechanism essentially consists of fingers that extend out from the center. One or more of these are pressed inward as they strike the sides of the hole. When an enlargement of the hole is reached the fingers open further. This tendency to contract and stretch is transferred mechanically to a rheostat lever.

LOADING PORT DESIGNED TO HANDLE LOW-GRAVITY CALIFORNIA OIL

By T. P. Sanders ..... *Page 46*

One 18-inch pipe line leading from elevated and heated storage supplies to two 12-inch submarine lines terminating 3,300 feet from shore permits loading tankers with 14-gravity fuel oil and allows tankers to unload water ballast.

DIVERSIFIED ELECTRIC POWER USE IS SHOWN IN BRADFORD FIELD

By J. P. O'Donnell ..... *Page 53*

Purchased electric power in the Bradford field, Pennsylvania, first used for lighting purposes only, has in recent years been expanded to a major source of energy. It plays an important part in waterflooding projects and consumption of power in this service averages between 1.25 and 2 horsepower per acre.

CONTROLLING ELECTROLYTIC CORROSION IN OIL REFINING PLANTS

By R. N. Coffman ..... *Page 56*

First of two articles dealing with the application of electrolysis control of corrosion in refineries. This method has long been applied to retarding corrosion of pipe lines, but no such widespread steps have been taken in refineries. The author points out where this method may be applied to advantage in refineries.

COMPOSITION OF LUBRICATING OIL INVESTIGATED AT PENN STATE

By F. L. Carnahan ..... *Page 66*

The petroleum refining laboratory at the Pennsylvania State College has been investigating the composition of Pennsylvania and other crude oils for a number of years. As the laboratory procedure has been refined more detailed analyses have been made and consideration is now given to the possible combinations of the 25 carbon and 52 hydrogen atoms making up the composition of lubricating oils.

OPERATING IDEAS ..... *Page 51*

PROGRESS IN METALS—*By W. L. Nelson* ..... *Page 65*

PROBLEMS FROM READERS—*By L. G. E. Bignell* ..... *Page 72*

QUESTIONS ON TECHNOLOGY—*By C. K. Francis, Ph. D.* ..... *Page 74*

A SHOT-HOLE RECORDER

By R. B. Bossler
Production Engineer, Brundred Oil Corp.

The size and shape of the shot-hole and the position and extent of caves have been not only of great interest to operators, but knowledge of these is of considerable value and importance, especially in secondary recovery work.

Our company is engaged in secondary recovery work, using air and gas as well as water. We were having very severe difficulty in setting packers and realized the desirability of some device which would tell us at least when the wall was bad. The device described herein was the result.

As is usual with first attempts, some changes and improvements were immediately apparent. While the form and construction of the present model gives satisfactory results, we can see many improvements, such as decreases of weight, changes in electric circuit, etc., which should be made in subsequent models.

The principle of operation upon which the feeler works is the following of the contour of the hole by a spring-actuated finger or fingers, operating, through a linkage, a variable resistance in an electric circuit. Variation of the resistance causes a variation in the current flowing, which is indicated on an ammeter.

Two designs have been developed, the first having but a single feeler finger and operating on a "push up" of the linkage, and the second having three independent fingers operating on a "pull down" principle and so arranged that any one of the fingers encountering a cavity will actuate the linkage, even though the wall in contact with the other two feelers is normal.

The accompanying sketches will illustrate the method of operation and use. The first sketch (Figure 1) shows the early model in place in a well, ready for operation. Sketch (Figure 2) shows the flow of current into and through the instrument and illustrates the manner in which variations in the size of the hole cause a variation of current which we are able to read at the surface of the ground.

The instrument is lowered into the hole with the fingers retracted. They are released by setting on bottom. The ammeter is observed while lowering. Should the release mechanism trip, it is immediately shown on the ammeter.

The feeler finger is shown in (Figure 1) dotted outline drawn back into position for lowering. It is held in this position by a light string which is passed through a hole near the top of the device, marked "string breaker." When on bottom, the entire weight rests on this "string breaker," and the weight is enough to cause the string to break, releasing the finger. This is immediately shown on the indicating ammeter at the surface. Readings are taken at intervals of about 6 to 12 inches as the instrument is pulled up the hole.

In the pull down type with several fingers, the fingers are held, likewise, by a light string passing through small holes or saw-cuts on the fingers and through a hole in the top of the "string breaker."

This instrument can be used in a dry hole or in one containing fluid equally well. In the case of fluid in the hole, insulation might appear to be a serious matter. Actually it is very simple. An insulated plug extending through the top of the case (we used a half-inch spark plug) is used under this condition. This is for the purpose of carrying the current through the case to the spring con-

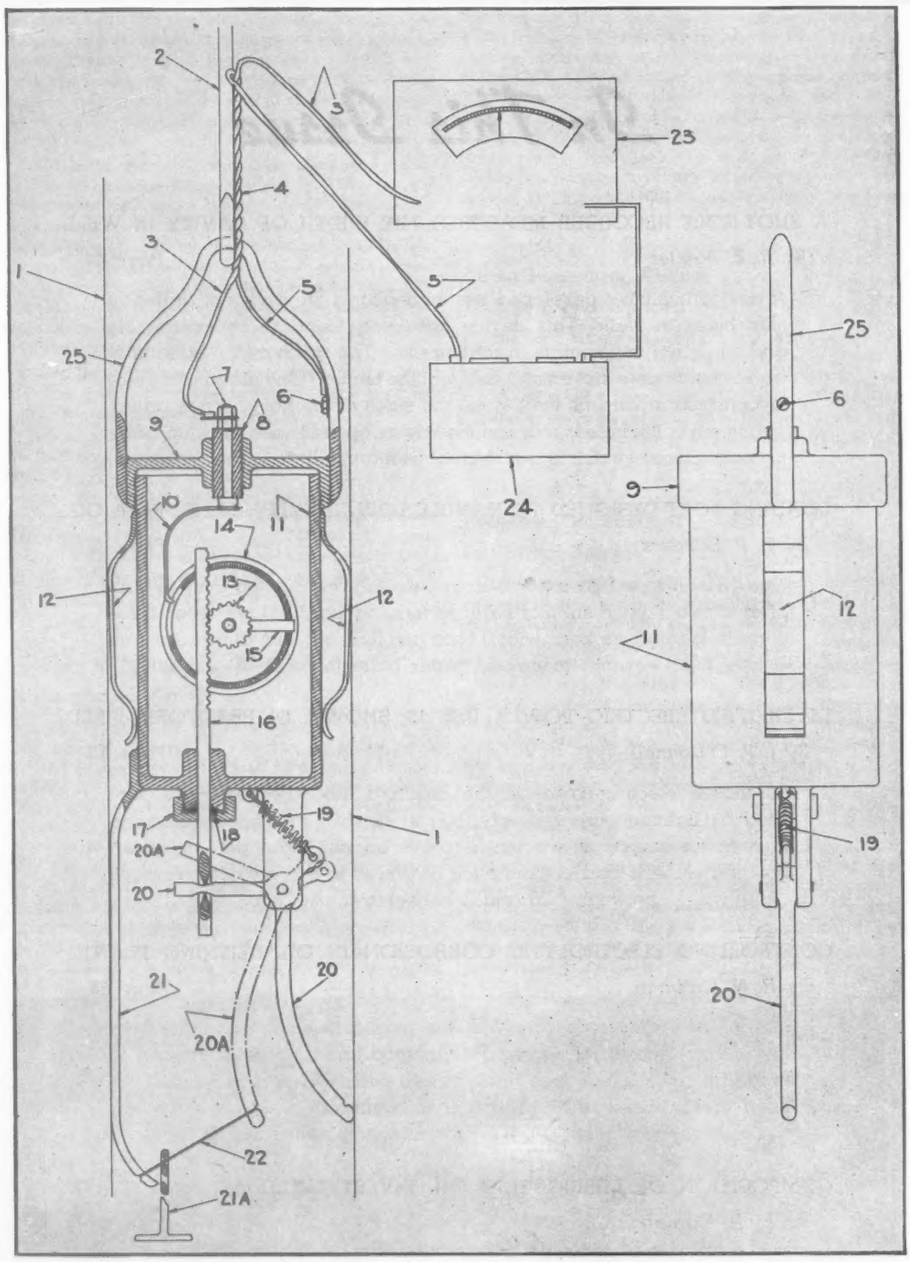


Fig. 1—Feeler mechanism in place in the hole. Numbers apply to two sets of drawings. (1) Wall of hole. (2) Sand line or measuring line. (3) Wire from live connection to recording machine. (4) Wires fastened to sand line or measuring line about every 25 feet. (5) Wire from battery to ground. (6) Ground connection. (7) Brass connection. (8) Insulating plug. (9) Top of case. (10) Wire spring connection from variable resistance. (11) Body of case. (12) Centering springs. (13) Gear operating finger on variable resistance. (14) Variable resistance. (15) Variable resistance finger. (16) Gear rack. (17) Packing gland. (18) Packing. (19) Tension spring. (20) Cantilever operating arm and feeler finger. (20A) Position of operating arm and feeler finger when lowering it in hole. (21) Slide arm. (21A) String breaker. (22) Light string. (23) Measuring device, indicating or recording. (24) Battery. (25) Bail of machine. (26) Conductor. (27) Pulley at top of hole. (28) Sand line or measuring reel. (29) Reel to wind current passing wires—3 and 5. (30-31) Brass or copper rings on side of reel with wires 3 and 5 attached. (32-33) Brass or copper spring fingers sliding along on rings 30 and 31 to make contact. (34) Wall of hole

tact connected to the variable resistance. We insulated this by a generous dose of compression grease. Being plastic, it adjusts itself to the pressures when immersed, and is not penetrated by the well fluids. It is a complete insulator at the voltages used. Penetration of water into the inside would be serious. We have found that the simplest method of preventing the entrance of water is to fill the case (through the hole for the insulator plug) with light lubricating oil. It can then be lowered into any depth of fluid without danger of water entering, since it is already full of oil. The oil is a nonconductor and does not interfere with the operations of the variable resistance or the linkage. This idea also eliminated the necessity that the stuffing-box around the push rod be very tight, which fact permits the instrument to work more freely. The only necessity for the stuffing box is to prevent loss of oil.

Length of Feelers

The length of the feeler finger on the early model was such that it would measure a hole 9 inches in diameter. However, we knew that we could not get a 6-inch packer to hold in a 9-inch

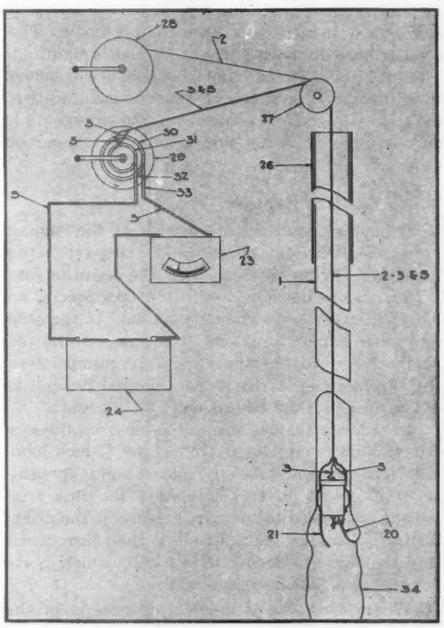


Fig. 2—Diagram showing flow of current into and through instrument. Key to numbers appears under Fig. 1

hole and hence it was sufficient for our purpose. The second model will measure a hole up to 28 inches in diameter. While this gives us a much better conception of the size of some of the cores and shot-holes, in many places the size of the hole exceeds 28 inches in diameter.

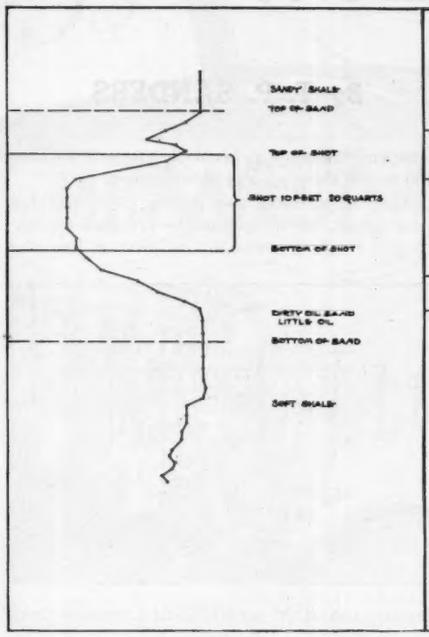
Four curves obtained by these instruments are shown. In several cases, these are input wells which had been shot for the purpose of increasing their input capacity. In a few cases, when we attempted to set packers in the apparently good wall, we found that the packers did not hold. The natural deduction from this was that the shot had caused vertical and radial fractures through which the air was escaping. This may also explain the failure of some cement jobs, and how cement at times goes by a packer with the packer apparently properly set.

This is believed to give some clue to the nature of the shot cracks and some idea of the distance from the shot at which the cracks are sufficiently large to allow easy flow of fluids.

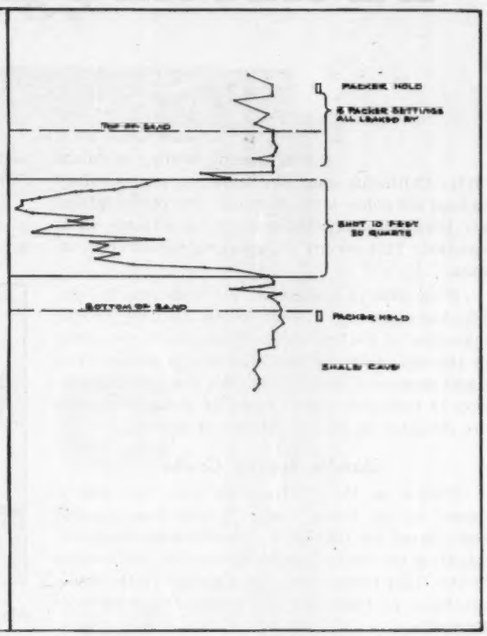
The profiles show the distance above and below the shot to which the walls are broken by the shooting, and comparison of the effects on the hard Venango sands and the quite soft sand of the Kansas record are quite interesting in this regard.

The shape of the profile is also interesting in showing the effect of the cleaning out. The heart-shaped profile seems to be the usual shape.

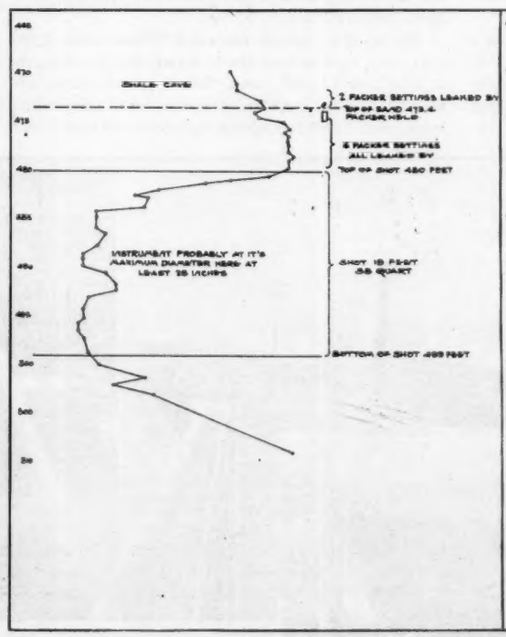
It is believed that this could be made a very useful tool in investigating some of the effects of shooting. The length of the arms and hence the diameter measurable can be readily increased if the electrical system is made more sensitive. This can be done if instead of using current flow, some form of Wheatstone bridge is employed and a method of balanced potentials is adopted. From the nature of our requirement, very little has been done to convert the milliampere readings to actual diameter. This is merely a matter of calibration, but actual dimension was of very little interest. The present instrument weighs about 14 pounds. A recording milliammeter having a chart driven by the movement of the cable would give an automatic continuous picture of the hole.



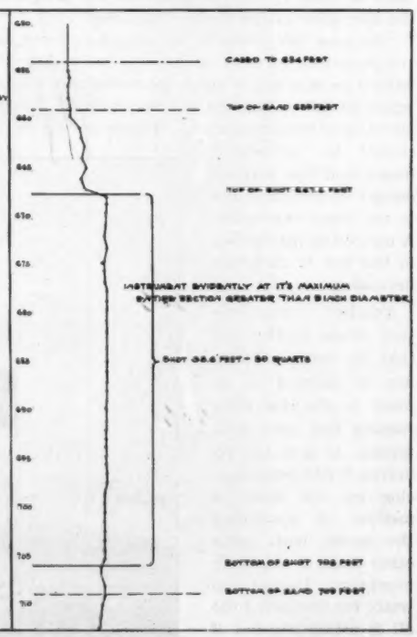
Curve 1—Readings on well in first Venango sand near Oil City. The straight portion of curve near top and bottom show normal 6-inch hole. The large deviation from vertical shows location of shot hole. The straight section in this portion indicates size of hole greater than range of instrument (28 inches)



Curve 2—Readings on well in second Venango sand. Sand was tight, fine grained and hard. Well measured with wall feeler and then tested by packer. While top of sand is apparently good, it could not be packed to hold air pressure. Setting was finally made on sandy shale above top of sand


SHALE CAVE
2 PACKER SETTINGS LEAKED BY
TOP OF SAND 413.4 PACKER HELD
6 PACKER SETTINGS ALL LEAKED BY
TOP OF SHOT 430 FEET
INSTRUMENT PROBABLY AT IT'S MAXIMUM DIAMETER HERE AT LEAST 28 INCHES
SHOT 10 FEET 30 QUART
BOTTOM OF SHOT 499 FEET

Curve 3—Record of well in the third Venango sand near Oil City. Sand was tight and free of pebbles. Well was measured with wall feeler and then tested by actual packer test. While wall at top of sand was apparently good, it would not hold air pressure, indicating vertical fractures. Parts of shot hole are greater than range of instrument (28 inches)


CASED TO 654 FEET
TOP OF SAND 659 FEET
TOP OF SHOT 661.5 FEET
INSTRUMENT EVIDENTLY AT IT'S MAXIMUM
RATHER SECTION GREATER THAN 9 INCH DIAMETER
SHOT 38.6 FEET - 30 QUARTS
BOTTOM OF SHOT 705 FEET
BOTTOM OF SAND 709 FEET

Curve 4—Record of well in Garnett Shoestring, Anderson County, Kansas. Sand is fine grained, soft and contains mica. This record was made with instrument having a range of only 9 inches. Uniform section at top and bottom is approximately 6 inches in diameter.

Loading Port Designed to Handle Low-Gravity Oil

By T. P. SANDERS

A new marine loading terminal on the California coast has demonstrated its ability to load sea-going tankers at the rate of 8,670 bbls. per hour, although 14.3-gravity Gato Ridge oil is handled. This record is important for several reasons.

With tankers in demand, the reduction in loading time represents a great saving. Also, the smooth operation of the loading facilities proves the value of the new features included in the design. Unusual measures have been taken toward conservation of fuel and water. Some of these economies are reflected in the record rate of delivery.

Handle Heavy Crude

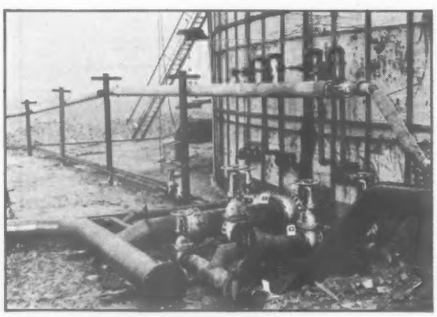
Known as Port Petrol, the new terminal is owned by the Petrol Corp. It was designed and constructed by Bechtel-McCone-Parsons Corp. for handling the heavy crude produced by the owners in the Gato Ridge field. Its location is 4½ miles southeast of Point Sal and 4 miles by road from Casmalia.

Port Petrol is of the submarine-loading type. The ship anchors more than half a mile off shore, hoists the loading hose from the ocean bottom and receives the crude as it flows by gravity from an 80,000-bbl. storage tank on the shore. In principle nothing could be simpler, but several conditions have necessarily complicated both the design and the operation of the loading facilities.

Because the crude is too viscous at ordinary temperatures to flow readily, it is necessary to heat it so that it will enter the vessel at a temperature of 120°. This, of course, calls for heating facilities at the storage tank. However, the hot oil cannot be introduced into a cold line without danger of buckling due to too rapid expansion. A method of preheating in the line is therefore necessary.

Another consideration arises in the fact that the crude oil cannot be allowed to remain in the line after loading has been completed. If it is not removed it will congeal to clog up the line. A method of displacing the crude with some other fluid is therefore necessary. Use of sea water for displacing the oil is attractive, but if cold water were pumped into a hot line, the result would probably be a pipe failure. This makes it necessary to displace the crude and cool the line with another fluid before the sea water is introduced.

Many ships come into loading port carrying water ballast. Facilities must be provided for taking this to shore through the loading line and placing it in a suitable reservoir to prevent it from finding its way into the ocean.



Heating manifold on 80,000-bbl. storage tank at Port Petrol

Port Petrol was designed to meet all of these conditions. The 80,000-bbl. tank is mounted on a hill at an elevation of 420 feet, thus giving a very good flowing head.

From the storage tank an 18-inch line 2,200 feet long carries the crude downhill, discharging it into two 12-inch lines. These 12-inch lines are parallel and conduct the oil 1,500 feet to the water's edge, then 3,300 feet along the ocean bottom to the ship's anchoring berth. Here, at a depth of 55 feet, the two lines are connected together so that they discharge into a 12-inch submarine hose 180 feet long. The hose terminates with a 12-inch worm-operated cock and an elbow.

When not in use the submarine hose lies on bottom and is marked by a steel buoy on a chain. By means of the chain the ship hoists the hose and connects a 10-inch deck hose to the elbow. The smaller hose discharges into the tanker's manifold. The steel lines and the submarine hose are designed to withstand a pressure of 1,000 pounds, so that the full hydrostatic pressure from the storage tank may be applied to the system, without danger of failure.

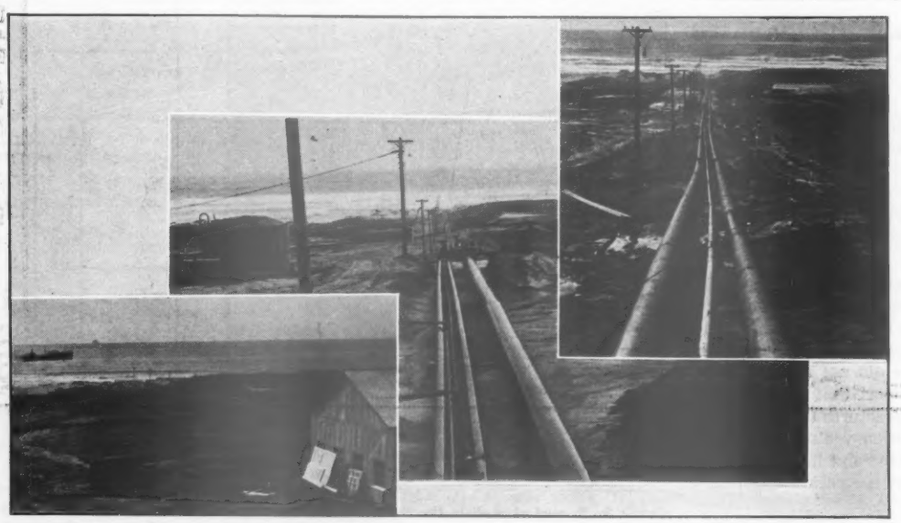
Remove Water

When a ship arrives at Port Petrol, the loading system is always full of sea water. This avoids the danger of having oil escape into the ocean in case a leak should develop due to a heavy storm, an earthquake, or for any other reason. If the ship has water ballast to unload, it is pumped into the submarine hose by means of the ship's pumps. Passing through one of the 12-inch parallel lines, it is discharged into the ballast pond on shore.

In order to remove the sea water from the system, gas oil is circulated around the 12-inch loop, displacing the water into the ballast pond. By heating the gas-oil during circulation the line temperature is raised to the temperature of the crude oil in the storage tank. Crude is then introduced into the line, displacing the gas oil, which is recovered in a gas-oil storage tank.

When the valve is opened at the end of the submarine hose to start flow into the tanker, the entire system is full of crude except for the hose itself, which holds about 25 bbls. of sea water. While preparations for loading are somewhat complicated, the entire procedure of displacing the sea water, circulating hot gas oil, and displacing the hot gas oil with hot crude, was recently accomplished in 47 minutes.

After loading has been completed, it is necessary for the ship to stand by until the crude is displaced with gas oil and the gas oil is displaced by sea water. The sea water is pumped in by the ship's pumps, and about 1,500



(Left) Tanker being loaded through submerged pipe line. (Center) Section of 18-inch surface line leading from heated storage tank to submarine lines. (Right) Two 12-inch submarine lines that connect tanker loading berth to 18-inch surface line.

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Threaded Flange
Tee
Return Bend
Reducer
Butt Flange
Slip-on Flange

bbls. are required to fill the pipe line system.

Port Petrol is accessible for ships of all sizes, since loading is accomplished in 55 feet of water. Five permanent 16,000-pound anchors are used for mooring, not including the ship's anchors. The position of the line is clearly marked, and it is not unusual for a ship to be moored in 40 minutes. Communication during loading operations is carried on by telephone, the cable following the course of the submarine lines.

A strange feature of Port Petrol is its lack of a pipe line connection. All crude is hauled into the terminal by truck. However, since the trucks would have difficulty in climbing the hill to the 80,000-bbl. storage tank, they are unloaded on lower ground where the crude is heated and pumped up to the storage tank.

Preparing to shoot line to barge preparatory to laying pipe line through water

The necessity for heating the crude in order to move it in pipe lines has been the chief factor leading to the use of trucks. The crude is taken directly from the lease tanks in the Gato Ridge field and carried 25 miles to the port. This procedure is proving fairly economical and may come into more extensive use where similar conditions are encountered. In the case at hand, the operation of a pipe line would be extremely difficult because continuous operation would not be possible and provisions would have to be made to prevent the crude from cooling in the line during shutdowns.

Heating of oil is an important function of the terminal. Crude is heated both in the truck-unloading tank and in the storage tank. Gas oil is heated in one of the 10,000-bbl. tanks provided for its storage. All heating is accomplished with steam coils in spite of the fact that all water must be hauled in by truck. A closed system is employed in which the condensate is automatically returned to the boilers. Only hard water is available, but the closed system obviates the necessity of a treating plant because the quantity of make-up water is small.

The four 70 hp. boilers at the terminal are operated at 15 pounds pressure, since they are used only for heating. They are fired on oil using atomizing burners driven by electric motors. Power for the burners, and for lighting purposes, is generated by 20 kw. and 10 kw. generator sets.

Oil pumps and generators are driven by diesel engines. Two horizontal duplex pumps are used which have alloy surfaces to resist corrosion from the sulfurous oil.

Launching Submarine Lines

Installation of submarine lines usually requires ingenuity, and this was especially true at Port Petrol because the lines were long and large in diameter. The entire submarine system, exclusive of the hose, was made up on shore in sections about 1,000 feet long. A one-half inch protective coating was applied in order to resist the corrosive action of salt water. The outermost section was capped to prevent water from entering and was dragged out through the surf by barges. The other sections were successively welded onto the first section. When the entire system was in place on the ocean bottom, a diver connected the submarine hose to the end of the 12-inch pipe section.

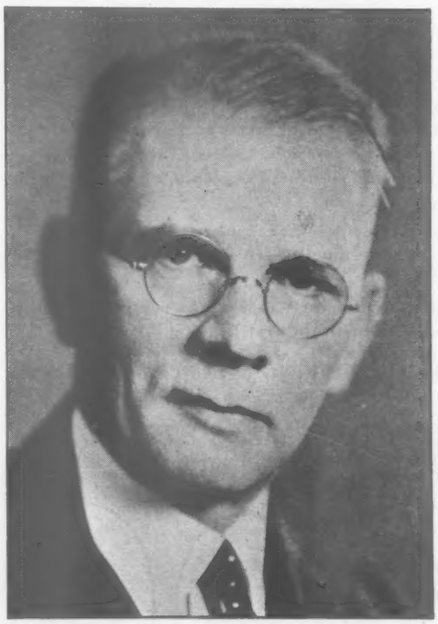
Difficulty was encountered in carrying out a seemingly trivial part of the launching procedure. Due to the heavy surf it was found impossible to launch the boat which was to carry the line from shore to the barges to be used in dragging the pipe lines. A small cannon was obtained to shoot the line to the barges, but the line fell short of its mark. As a last resort an airplane was engaged to drop a light line over the barge which could be used in pulling out heavier lines.

To date seven tankers have been loaded at Port Petrol. All crude handled has been heavy Gato Ridge crude produced by the Petrol Corp. It has been shipped to both other American and foreign ports.

Doctor T. G. Delbridge Elected New President of A. S. T. M.

ATLANTIC CITY, N. J., June 27.—Through the election today of Dr. T. G. Delbridge of the Atlantic Refining Co. as president of the American Society for Testing Materials the oil industry is given further recognition for its work and close cooperation with scientific and engineering groups.

The announcement of the election was made in the first session of the society's forty-first annual meeting. The meeting will extend over a five-day period and in that time committee reports and discussions will be held on subjects covering many industries. Papers covering petroleum products will be delivered Thursday evening, after which the annual report of D-2 will be read. T. A. Boyd, chairman of the committee, will present tentative methods for determining the extent of heating when acid treating gasoline and new specifications will be presented for Stoddard solvent. Revision of existing methods of test are to be recommended for Reid vapor pressure of petroleum products, knock characteristics of motor fuels, and the kinematic viscosity tests. It is recommended that the method of test for color of refined petroleum oil by means of the Saybolt chromometer be adopted as standard.



Dr. T. G. Delbridge, manager of research and development department of the Atlantic Refining Co., newly elected president of the A.S.T.M.

Revisions are presented for immediate adoption in the standard methods of test for saponification number, and in the distillation test for gas oils to make it applicable also to similar distillate fuel oils. A special procedure for light distillate oils is proposed as a tentative revision of the standard test for Conradson carbon residue. In the standard method for viscosity by means of the Saybolt viscosimeter, revisions published as tentative last year are proposed for adoption.

At this time Frank L. Wright and H. A. Mills of the Norma-Hoffman Bearing Corp. will present a paper on the chemical stability of petroleum greases.

They will discuss an oxygen absorption method which has been used successfully to predict the relative chemical stability of lubricating greases. Data will be presented showing the influence of a number of interesting variables on the length of the induction period in hours. Typical oxidation curves will be presented for a variety of lubricating greases such as soda and mixed base greases (ball-bearing type), lime soap greases, aluminum soap greases, mild extreme-pressure greases and hypoid gear greases.

Electrical insulating oils will also be discussed from the standpoint of their chemical composition, dielectric stability and resistance to oxidation.

Maritime Commission Opens Bids on Fuel, Diesel Oil

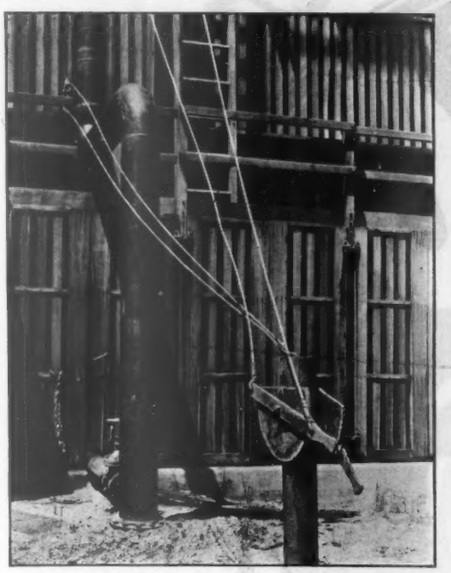
WASHINGTON, D. C.—Eighteen oil firms submitted bids to the Maritime Commission to supply diesel and fuel oil to government vessels for the period from July 1 to December 1, 1938.

Among the bidders for diesel oil, with their base bids, were: Standard Oil of New Jersey, $1.55 per barrel at New York; Socony-Vacuum, $1.75 maximum at New York; Tide Water Associated Oil Co., $1.55 maximum at San Pedro; Shell Oil Co., $1.55 maximum at San Pedro; Richfield Oil Co., $1.37½ maximum at San Pedro; Standard Oil Co. of California, $1.55 on two grades of oil at San Pedro; and Union Oil Co., $1.09½ fixed price at San Pedro.

Among bidders for fuel oil and their base bids were: Standard of New Jersey, 95 cents per barrel at New York; Cities Service Oil Co. (northeast division), $1.25 at Boston; Shell Union Oil Co., $1.05 maximum at New York; Socony-Vacuum, $1.05 maximum at New York.

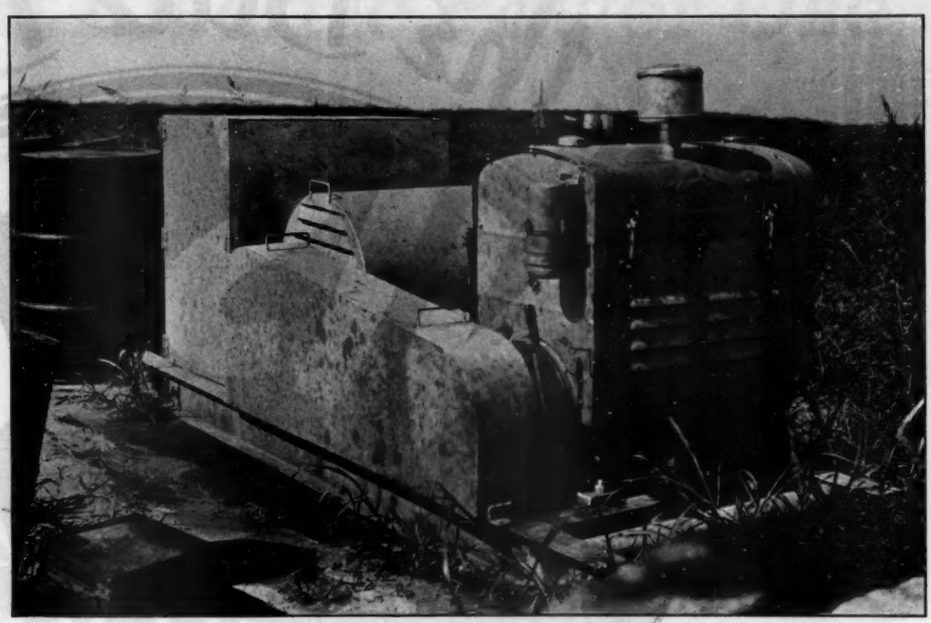
Commission officials said low bidders could not be immediately determined because many bids submitted deviated from specifications contained in the invitations and because of varying charges for barge delivery, demurrage and other incidental expenses.

OPERATING IDEAS



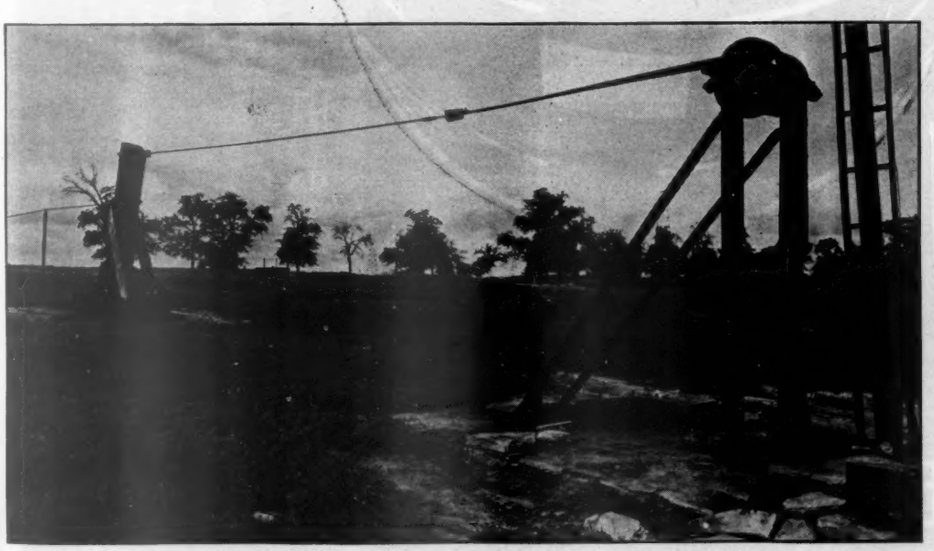
Float Control on Cooling Tower

A natural gasoline manufacturer operating several large plants in Oklahoma has a simple method of opening and closing valves on lines circulating water over the cooling tower. As shown in the accompanying photograph, this is accomplished by levers, operated from the ground. Each lever has two steel cables attached to quick-opening valves installed in the lines. This allows the operator to control the water flow on both the lower and upper sections of the tower.



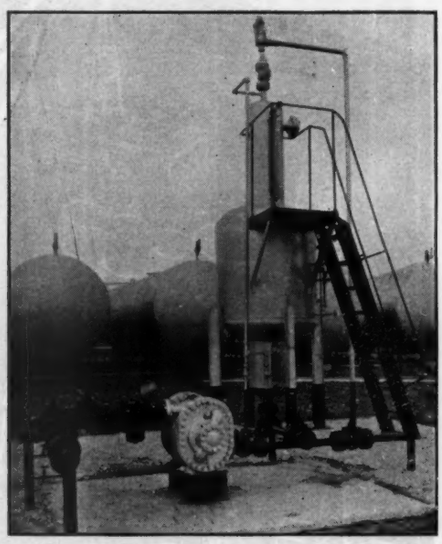
Separate Housing Used on Novel Generating Set

A large drilling contractor operating in the K.M.A. field near Wichita Falls, Tex., has designed and built the unusual portable generating set shown in the accompanying photograph. This set is entirely enclosed, including the drive connecting the engine to the generator, and has separate housings for the switchboard and generator. This makes it very accessible in case of repairs and at the same time protects the unit from the weather. The unit is mounted on skids, and is used on both cable and rotary drilling tools.



Poor Boy Pumping Jack on an Oklahoma Well

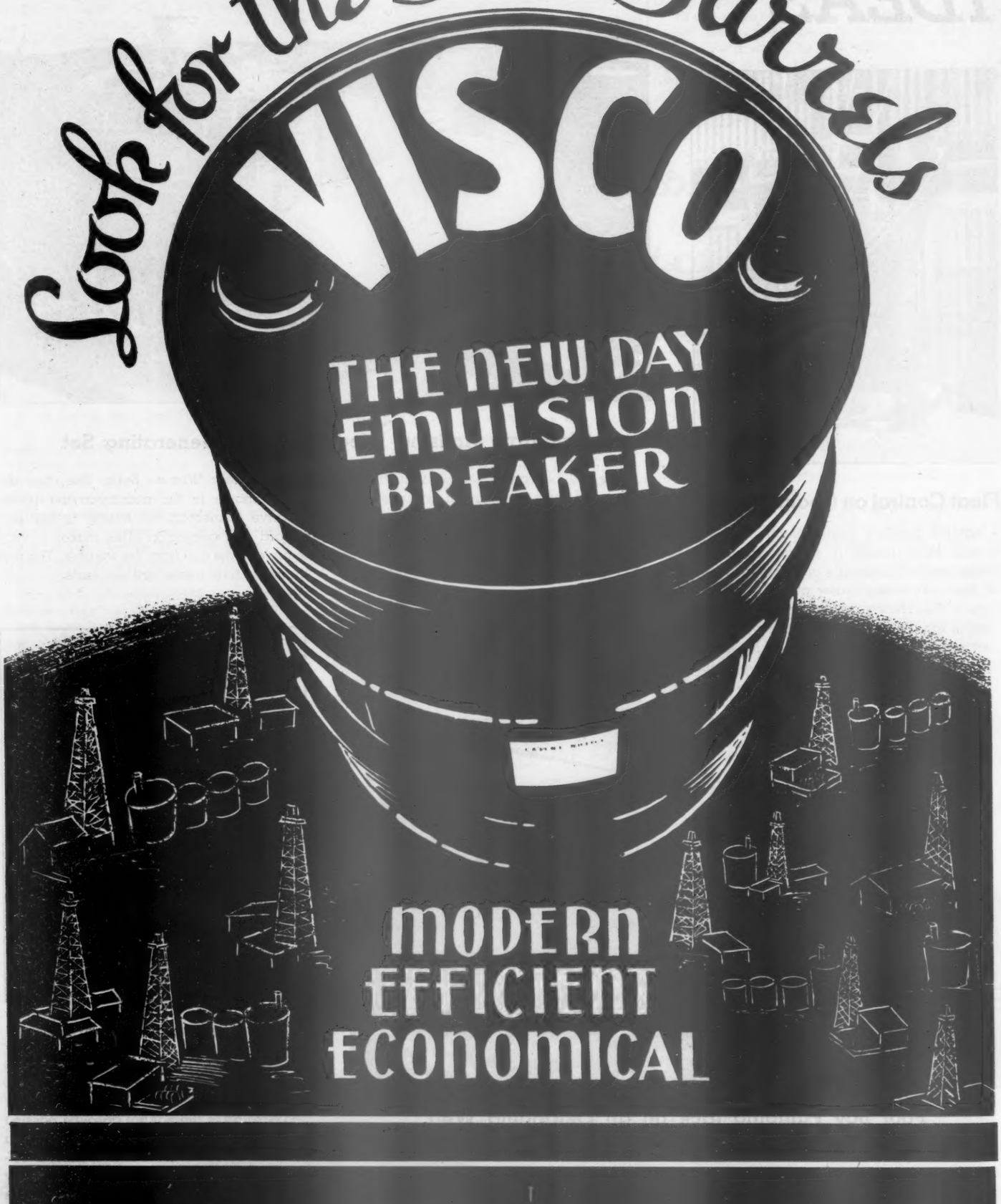
A shallow well being pumped in the Oilton field is pumping 14 strokes per minute by means of a piece of discarded belt and a pull rod. The stroke post consists of two rig timbers and a reclaimed rig-iron which serves as the bearing. The belt section rolls over a cast pulley keyed to a shaft rolling in a smooth bearing. This effects a straight pull on the polish rod.



Check-Tank on Gasoline Line

A large natural gasoline manufacturer has built a check-tank along the flow line into which a meter has been inserted. The meter measures all of the natural gasoline passing from the storage tanks into the cars. As a check on the meter from time to time, a calibrated tank is allowed to receive the oil flow for the period of its filling capacity and this serves as a check on the meter reading.

Look for the Blue Barrels



Diversified Electric Power Use Is Shown in Bradford Field

By J. P. O'DONNELL

Use of purchased electric power in the Bradford field has paralleled the development of this field in its growth from just another oil-producing area to one of the major fields of the country with a daily average production of 45,000 bbls. Used merely for essential lighting purposes years ago, it has gradually broadened its scope to the point where it has become a major consideration in the development of properties in this 85,000-acre field. According to estimates, 10,000 of these acres are flooded out, 30,000 acres so far are untouched by flood and 45,000 acres are

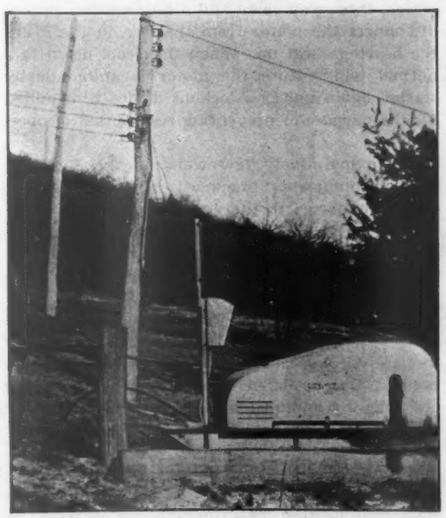


Fig. 1—Two-well direct-connected tandem pumping unit in the Bradford field

under flood at the present time. The conclusion is that Bradford producers are only beginning to feel the pinch and that the really scientific development of these properties will come as operators find it necessary to revert to "watered out" properties and to properties that are not so receptive to present methods since the area will still represent a crude oil reservoir of considerable proportions.

Electricity plays an important role in present water-flooding operations and will likely play an even more important role in the developments that are on their way, chiefly through the agency of the Bradford District Pennsylvania Oil Producers' Association research program at Pennsylvania State College. Electricity is even being employed in the studies of this group, headed by Dr. S. T. Yaster, since it has been found that the flow of electricity in certain media is analogous to the flow of water in producing sands and this method is being used to study direction and intensity of water floods.

It has been estimated that electrical horsepower necessary to operate water-flood property by present methods averages between 1.25 and 2 horsepower per acre. This includes power for pumping whether by geared or bandwheel central powers, single- or two-well units. The water supply is provided in most instances by deep-well turbine pumps and the power necessary for operating water treatment plants and pressure plants which inject water into the sands at pressures ranging from 300 to 1,500 pounds.

Purchased electric power in the Bradford field serves pipe lines, refineries and producing properties. The breakdown, shown in Table 1, which applies to all but the small part of the field lying outside McKean County, indicates the increase in demand for this type of power over the past few years.

TABLE 1—INCREASE IN ELECTRIC INSTALLATIONS

Year—	Pipe line	Refineries	Oil well and water pumping	Drilling rigs	Total
1931	30	4	118	4	156
1933	47	4	136	7	194
1935	81	4	146	10	241
1937	84	4	332	12	432

Another criterion of the growth in demand for purchased electric power, as shown in Table 2, is the annual consumption of horsepower hours for oil industry purposes in these years:

TABLE 2—ANNUAL CONSUMPTION IN HORSEPOWER HOURS

Year	Hp. hrs. used annually
1931	17,203,075.44
1933	17,184,031.36
1935	26,665,279.08
1937	48,161,228.10

While the above data include both refinery and pipe line installations, the remainder of this article will be devoted to a discussion of some of the uses purchased electric power serves in producing operations. The trend toward electrification of producing properties, as shown in Table 1, is further attested by the growth in horsepower hours used exclusively for these purposes which rose from 7,750,000 in 1931 to over 26,000,000 in 1937. The majority of the electrical horsepower used in producing operations in the Bradford field is divided between pumping and pressure plants with their auxiliary equipment though there are also a dozen electrically powered drilling rigs. In addition to these operations, electricity also serves numerous other purposes, individually small but of considerable consequence to the supplying companies in the aggregate. Included among these purposes are the following:

1. It is used extensively on oil and gas engines for control and protective devices such as motor-operated valves and mercoid switches for shutting down the engine in the event of failure of some part of the equipment or the supply of cooling water, fuel or lubrication.

2. A multitude of small electric air compressors are used for starting oil and gas engines.

3. Sludging of oil in geared powers during the winter is prevented by the installation of thermo-

Fig. 2—Modern water-treating plant employing electric power

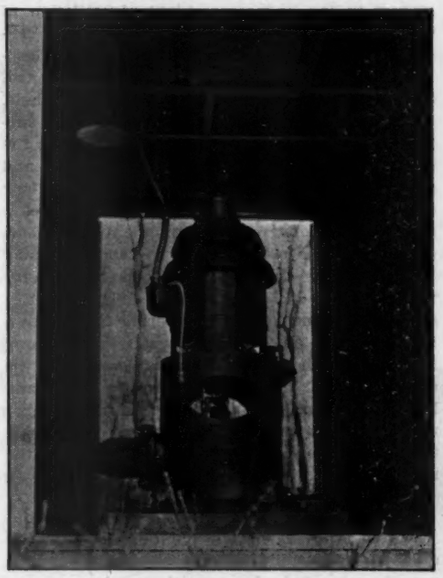


Fig. 3—Deep-well turbine

statically controlled, 175-watt immersion heaters in the reservoir which constantly maintain the oil at a summer temperature. By stopping the flow of oil, this sludging has resulted in the burning out of bearings and eccentrics.

4. Many of the power houses throughout the field are equipped with floodlighting to insure the safety of the night pumper in hooking the wells off and it is also used in running and gauging tanks.

5. It is used frequently for thawing out frozen water lines and for melting paraffin out of lead lines. It is not necessary to dig up the lines for this purpose, an important consideration in view of the difficulty in reburying them satisfactorily with frozen soil. A tap of the electric line is made at either end of the plugged or frozen section of the oil or water line and electric current applied for a short time.

Latest developments in the use of electricity in the Bradford field are submerged oil and water pumps, only one of each of which is in operation in the field at the present time. The submerged oil well pump is in operation on the Frick & Storms

lease in the city of Bradford, and the submersible water pump is in operation on the Niagara Oil Corp. Boyne lease.

The installation on the Frick & Storms lease consists of a 5-hp. motor and a reciprocating, positive discharge pump combined in a single unit approximately 5 feet in length. This unit is set at the bottom of the well, in this instance producing from a depth of 1,150 feet. The reciprocating, positive discharge pump contrasts with the centrifugal type which has been used with electric motors on submersible units in the Mid-Continent fields for some time. This 1,800-r.p.m. motor, to which current is supplied through a heavily insulated armored cable, drives the pump through transmission at approximately 150 r.p.m.

This unit, designed by R. R. Reck of Bradford, is pumping at the rate of 10.52 bbls. per hour and, of course, is in operation but a short time each day. It is said to be one of the most economical of the electrical pumping devices employed in the Bradford field in the point of power cost.

The only submersible deep well turbine in the field is on the Boyne lease of the Niagara Oil Corp. This unit is set at 250 feet, delivering an average of 150 gallons per minute to the hydropress plant. Installation of this unit is comparatively simple. The unit, consisting of an electric motor mounted below a deep-well turbine pump to which it is direct-connected, is attached to the tubing and lowered into the hole. Both the motor and pump operate completely submerged in water. A surface plate attached to the top end of the tubing rests upon a foundation and suspends the entire unit. Only a discharge elbow and a weather-proof switch box from which electric power is delivered to the motor through lead-covered steel armored cables are above ground. Water entering the pump flows past the motor which is kept cool by this means. The motor is entirely enclosed in a steel covering filled with a high dielectric oil to prevent water from coming in contact with any of the moving parts of the motor. This oil also serves to cool the motor and lubricate the ball bearings. When additional oil is required, a relay stops the motor and oil is added through a tube from the surface, eliminating the necessity of pulling out for this purpose.

Types of Pumping Units

Three types of electric pumping units are in quite general use in the Bradford field, the central geared or bandwheel power, the tandem or two-well unit and the single well unit. There are hundreds of the single well units in use throughout the field. They are equipped almost universally with 3-hp. motors and most of them with automatic timing devices which start up or shut down the motor at required intervals.

Five-hp. motors normally are used for the two-well units though a number of 3-hp. motors are operating this type of pumping unit. Figure 1 illustrates a two-well direct-connected tandem unit pumping two wells on the G. L. Rhoades lease at Coalville.

One of the most modern electrically operated water treatment and pressure plants in the field is that on the Grant & Mohan Aiken lease, shown in Figure 2. Here the settling tank is shown on the left, the raw water tank in the center and the treated water tank at the right. The pump and filter are on the first floor of the building and the lime feed tank and coke aerator on the second. A 15-30-hp. two-speed (450-900 r.p.m.) motor powers the triplex pump which is operating at a pressure of 250 pounds with a maximum capacity of 150 gallons per minute. A 1½-hp. pump circulates the water through the filter and a 5-hp. motor operates the backwash pump for cleaning the filter beds. Lime treatment apparatus with the automatic feed is controlled by a 1/25-hp. motor, and the agitator by a ½-hp. motor. The deep-well turbine shown in Figure 3 consists of a 20-hp. 1,800 r.p.m motor direct-connected to an 8-inch deep-well turbine pump set at 345 feet.

Another type of water plant is that of Niagara Oil Corp. on the Stohle-Hunter lease. The building houses two pressure units, one a 100-hp. direct-connected vertical centrifugal pump and the other

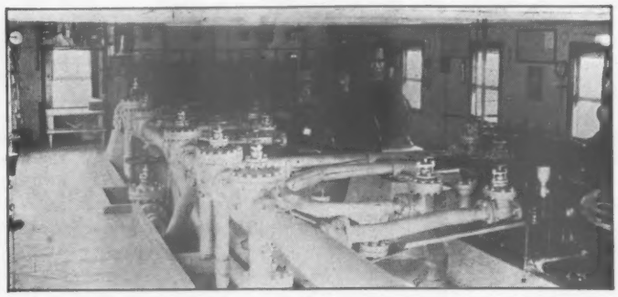


Fig. 4—Largest all-electric pressure plant in the Bradford field. The plant has a daily capacity of 22,000 bbls.

a 4¾ by 8-inch triplex powered by a 75-hp. electric motor through a flat belt drive. A ½-hp. rotary pump takes lime water from the mixing tank to the raw water tank.

The largest all-electric pressure plant in the Bradford field is the Petroleum Reclamation's plant on the Looker lease. Four 3 by 2½-inch pumps powered by as many 125-hp. 3,600-r.p.m. synchronous speed motors and one vertical centrifugal pump with a 150-hp. 3,560-r.p.m. motor inject water into the sands at pressures of 300, 305, 700, 1,100 and 1,500 pounds. This plant, an interior view of which is shown in Figure 4, has a capacity of approximately 22,000 bbls. per day. At the field average of 25 bbls. of water per well per day, it would be possible for this plant to supply 880 average intake wells. The water supply is pumped in from the Allegheny River in New York through a 24-inch line serving a distribution system in the field. This pipe line is operated by the Reclamation Supply Corp., a subsidiary of Petroleum Reclamation Corp.

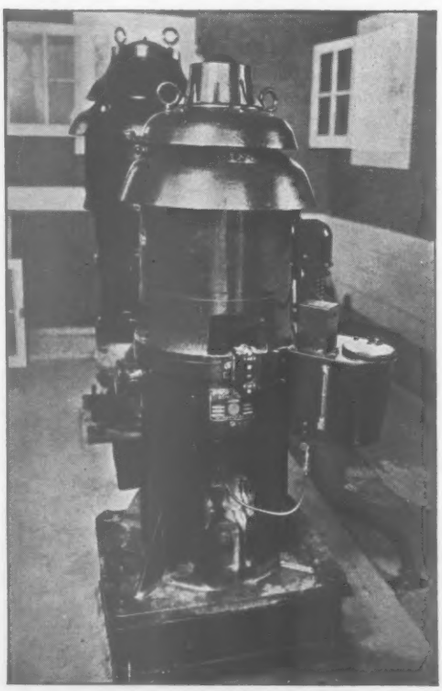


Fig. 5—Compact hydropressure plant on a Niagara Oil Corp. lease

Another compact type of unit is that employed by the Niagara Oil Corp. on its July Fourth lease. This plant consists of only two units (see Figure 5), one a 15-hp. deep-well turbine and the other a 60-hp. vertical centrifugal hydropressure pump. This unit is housed in a building measuring approximately 8 by 10 feet, resting on a foundation in such a way that it can be skidded off with a tractor to provide room to work on the pumps. Water is not treated in this plant but is pumped to the surface by the deep-well turbine and returned to the sand by the hydropressure pump without being exposed to light or air. Treatment is obviated since, according to water engineers, water is in a naturally balanced state as it leaves the ground.

In addition to furnishing power for hydropressure plants, electricity is employed frequently for protective purposes. A typical example is the plant of Bovaord & Hamlin on their Rew lease. Thermocouples are embedded in each of the bearings of the four-speed motor. These thermocouples operate on a thermal current which, through a relay and a holding coil circuit, disconnect the motor from the line in the event the bearings heat up. When they cool down to a normal temperature the motor is automatically started again unless a lockout device is installed for the purpose of preventing resumption of operation.

A comparatively few wells in the Bradford field are pumped by pneumatic cylinders with the piston connected to the sucker-rods. These cylinders are supplied with compressed air from central, usually distant, compressor stations. The compressor station of the Minard Run Oil Co. on its Custer City lease, is one of the largest of such plants in the field. In this plant two two-stage compressors are powered by two 185-hp. electric motors. Air leaves the plant at a pressure of 75 pounds. Only isolated wells which could not be conveniently pumped otherwise are pumped by this method now.

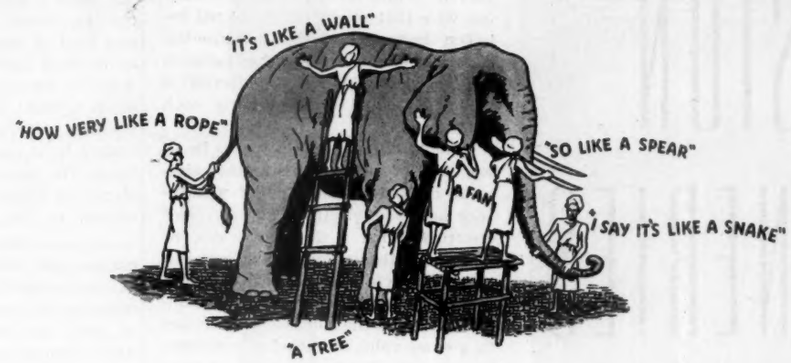
Use in Stock Tank Heating

Electricity also performs an important role in stock tank heating. This function was described as follows by A. C. Simmons of the Simmons Oil Corp., Bradford, in a paper presented at the recent eastern district division of production meeting of the American Petroleum Institute:

"Oil stock tanks have been arranged for automatic heating, circulating a mixture of Prestone and water through coils in the bottom of the tank. Individual thermostats are installed on each tank and through electrically controlled motor valves, the circulation of the hot liquid is automatically stopped when the tank has reached the desired temperature at 70° F.

"The liquid mixture of Prestone and water is heated in a conventional domestic hot water boiler at 160° F. Circulation is provided by an electrically driven circulator and individual hot lines extend from the boiler to each of the stock tanks. A single common line returns the cooled liquid to the boiler. The heating and circulation of the liquid are controlled automatically by electrically operated equipment. Practically no labor is required in the operation of the system for any arrangement of tanks can be heated by closing electrical switches for the designated tank, or combination of tanks. The thermostats at the tanks will stop circulation when the oil reaches the desired temperature of 70° F. Provision is also made for manual operation to permit repair and inspection of the automatic valves."

The Blind Men and The Elephant . . .



EVERY JOB OF DRILLING is not like every other. One experience or one set of conditions can not be taken to represent all. Is a cable outfit the proper equipment? Maybe! Would a rotary do better—or perhaps a combination of both methods? The answer, again, is "Maybe." There is no real answer to your problem till the problem itself is known.

What *is* your problem? A half-dozen advisers who cannot see your *whole* picture, might argue like the "six men of Indostan" and, though "each were partly in the right, might all be in the wrong." There is no universal best method. There are only best methods for particular cases—full cost and ultimate yield being considered.

In drilling a well, the fundamental problem is one of economy. Whatever method you use, reliable equipment and a capable crew are necessary. An analysis assuming these, with your own requirements definitely in view, will enable you to compare, decide, and then proceed—knowing that the method you adopt is the best for your particular job.

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CONTROLLING ELECTROLYTIC CORROSION IN REFINERIES

By R. N. Coffman

THE TECHNIQUE OF PIPE LINE ELECTROLYSIS CONTROL THROUGH USE OF CATHODIC PROTECTION HAS MADE GREAT PROGRESS IN RECENT YEARS, BUT IN REFINERIES NO SUCH WIDESPREAD STEPS HAVE BEEN ATTEMPTED TO ANY GREAT EXTENT. EXAMPLES OF CASES IN WHICH SUCH APPLICATION WOULD PROVE OF GREAT VALUE ARE CONDENSER BOXES AND WATER TANKS. HERE THE AUTHOR DISCUSSES FUNDAMENTALS OF ELECTROLYSIS AND THE PRINCIPLES OF ELECTRICAL CONTROL OF CORROSION IN REFINERIES. IN THE SECOND PART, TO BE PUBLISHED IN AN EARLY ISSUE OF THE OIL AND GAS JOURNAL, HE WILL DESCRIBE THE DESIGN OF CATHODIC SYSTEMS AS APPLIED TO REFINERY EQUIPMENT.

The enormously valuable results being obtained through the application of electrolysis control equipment to pipe lines are very well known. Practically no corrosion occurs on an insulated pipe line that is maintained electrically negative to the soil; and, vice versa, the soil is maintained electrically positive to the pipe.

By this is inferred that should the pipe make contact with the soil, by means of a pin hole or break in the insulating covering, chemical action (should it be allowed to take place, such chemical action would, under certain conditions, generate an electrical current flow in a direction from the metal of the pipe and into the soil; and this flow, in that direction, would accelerate the chemical action and consequent disintegration of the structure of the pipe) that otherwise would result from this contact will not take place; because the electrolysis control equipment causes an electrical current to flow from the soil and into the metal of the pipe at the point of contact with the soil.

The engineering technic of pipe line electrolysis control has been creditably advanced. Nevertheless, any experienced engineer in this phase will admit that there is yet much to be learned. However, this paper is not concerned with pipe line protection except for preliminary illustration; but it has been devised for the purpose of giving industrial engineers, and especially oil refining engineers, a few practical pointers on the application of the principles of the electrical control of corrosion to perhaps many places within properties of their own jurisdiction. Examples of cases in which such application should prove of great value would be condenser boxes and water tanks as used in oil refineries. In such cases, the chemical action occurs where the water comes into contact with the condenser box surfaces, the condenser pipe surfaces or the tank surfaces.

In the construction of a primary voltage cell for the generation of an electrical current flow, an electrolyte is used that has the desired chemical action on metals. Two pieces of metal are immersed in the electrolyte—one piece for the positive electrode and one piece for the negative electrode. An electromotive force is immediately set up between the electrolyte and the metals, due to the chemical affinity existing between the electrolyte and the metals; and this electromotive force, at each electrode, is in such direction as to tend to cause a current to flow from the metal and into the electrolyte. Should both electrodes be of identical metal, then no current would flow through an external wire that might be connected between the two electrodes; because the electrical conditions existing between the two electrodes and the electrolyte would be equal and opposing each other.

Should one of the electrodes be of one kind of metal and the other electrode of some other kind of metal—such as a zinc electrode and a copper electrode—then a different value of chemical affinity would exist between the electrolyte and the two different electrodes. This greater value of chemical affinity at the zinc electrode causes its greater value of electrical condition to overcome the lower value of electrical condition at the copper electrode; so that, when an external wire is connected between the two electrodes, a current flow would take place through the entire electrical circuit with a direction of flow from the zinc, through the electrolyte and into the copper. In other words, speaking of the internal characteristics of the cell, the zinc electrode is of positive polarity to the electrolyte because the current flow is from the zinc and into the electrolyte; and the copper electrode is of negative polarity to the electrolyte because the current flow is into the copper from the electrolyte.

The chemical action at the zinc electrode increases with the amount of current allowed to flow through the circuit; and it is such as to cause the zinc to waste away or actually to be carried by the current flow, into the electrolyte. The copper electrode, on the other hand, does not waste away as long as more than a certain value of current is allowed to flow through the circuit; because the current flow from the electrolyte and into the copper is in a direction opposed to that contact potential as would have to exist in order for chemical action to take place at the copper electrode.

Should an external battery be connected so as to overcome the self-generated electrical condition at the zinc electrode, and thereby cause sufficient current to be forced to flow from the copper electrode into and through the electrolyte to the zinc electrode, then the copper electrode would waste away while the zinc electrode would not waste away. Should the experimental cell be placed aside without an external connection between the two electrodes, so that no current could flow, then both the copper electrode and the zinc electrode would slowly disintegrate, due to the normal action of the electrolyte upon each electrode. Another manner of deliberating the phenomenon of current flow from an electrolyte into a metal preventing chemical action, is to consider that the current flow in that direction causes hydrogen bubbles to form on the surface of the metal; and that these bubbles protect the metal surface from chemical combination with the electrolyte. The amount of current necessary to generate sufficient hydrogen to prevent chemical action depends upon the chemical affinity existing between the electrolyte and the metal. Figure 1 shows the existing polarities throughout the circuit of an experimental cell, when the two electrodes are of the same kind of metal and an external wire is connected between them. Each of the two electrodes is of positive polarity to the electrolyte; and, vice versa, the electrolyte is of negative polarity to each of the two electrodes.

Figure 2 shows the existing polarities throughout the circuit, when one of the electrodes is of one kind of metal and the other electrode is of some other kind of metal; and when an external wire is connected between the two electrodes. With current flowing, the zinc electrode is of positive polarity to the electrolyte, and the electrolyte is of positive polarity to the copper electrode. The polarities as indicated in the complete circuit of Figure 2 are such as must exist for a current to flow.

In case either of the above two cells was placed aside without an external connection, the existing polarities would be as in Figure 1; thus resulting in slow deterioration of the structure of both electrodes regardless of whether both were constructed of copper or of zinc or one was constructed of copper and the other of zinc.

In any case where an electrode has current flowing from it and into the electrolyte, that electrode is known as an anode; regardless of whether the current flow is generated by the electrolyte-electrode contact or the current is forced to flow by some external electromotive force. The deterioration of the metallic anode is tended to be accelerated, by the action of the electrical current flowing from the anode and into the electrolyte. In any case where an electrode has current flowing into it from an electrolyte, that electrode is known as a cathode; regardless of what electromotive force is causing the current to flow. The structure of the metallic cathode tends to be preserved, by the action of the electrical current flowing from the electrolyte and into the cathode.

The above illustrations prove several facts upon which corrosion control by cathodic protection is based:

1. Chemical action tends to take place between acids or wet salts and a metal; and such consequential chemical action tends to cause an electrical current to flow from the metal and into the acids or wet salts. Should conditions be such as to allow this current to flow, then the chemical action will be accelerated by this current

flow; and it would seem that the metal is the fuel that must be consumed for the generation of this current flow.

2. Chemical action tending to take place between acids or wet salts and a metal may be prevented by forcing an electrical current to flow from the acids or wet salts and into the metal; since this current flow would be in a direction opposed to that direction in which current flow would tend to occur as a result of allowed chemical action.

3. By applying an external electromotive force, of only sufficient value as to prevent a current flow in the circuit as might result from the chemical action of the acids or wet salts on the metal, prevents such abnormal chemical action as would exist with a self-generated current flow in a direction from the metal to the electrolyte; but this would not eliminate normal chemical action, as would occur in the experimental cells of Figures 1 and 2 placed aside with the electrodes not connected externally.

4. In order to prevent normal chemical action, the amount of current necessary to flow from an electrolyte and into a metal depends directly upon the chemical affinity existing between the electrolyte and the particular metal.

5. The amount of chemical action which may be expected between an electrolyte—from pure distilled water to a heavy acid—and a particular kind of metal is directly dependent upon the electrical conductivity of the electrolyte. There seems to be (this view may be considered as correct for practical purposes) a direct relationship between the resistance of an electrolyte and its chemical affinity for a certain metal as expressed in terms of electromotive force of polarization.

In other words, should the electrolyte in the experimental cell of Figure 2 consist solely of pure distilled water, then the chemical action at the zinc electrode and the consequent current flow through the closed circuit would be practically infinite. In accordance with this rule, the electrolyte would have an extremely high resistance and, consequently, it may be expected that only a practically infinite current would have to be forced from the electrolyte and into the zinc electrode, by an external electromotive force, in order to eliminate all chemical action at the zinc electrode.

Should the electrolyte in the cell consist of water and acid, then the chemical action on the zinc electrode and the consequent current flow through the closed circuit would be comparatively great. Therefore, it may be expected that a comparatively great current would have to be forced from the electrolyte and into the zinc electrode, by an external electromotive force, in order to eliminate all possible chemical action at the zinc electrode. The truth of the matter is, there seems to be a certain ratio, in strict association, between the current generating capacity of the electrolyte-metallic contact and the minimum necessary value of opposing current flow for the prevention of normal chemical action.

From the above paragraphs, we may very easily see that when a certain external electromotive force is determined as will force sufficient current through an electrolyte of a certain resistance as to prevent chemical action between that electrolyte and the cathode surface, the value of the current flow will automatically increase or decrease with the resistance (inversely) of the electrolyte and its consequent change in normal chemical affinity for the cathode metal. Correct protection of the cathode surface will therefore always exist, automatically, as long as the applied electromotive force remains constant; regardless of any possible change in the normal chemical affinity of the electrolyte for the cathode metal.

When once this e.m.f. factor is obtained, together with other factors commented upon hereinafter, the engineer will be in a position to render fairly good judgment in the design and installation of an anode system giving adequate, ef-

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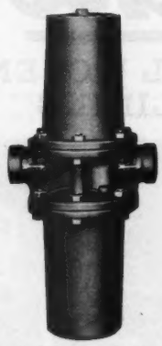

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ficient and valuable protection. In the case of a gas or an oil pipe line, we may easily see that there is no opportunity for chemical action to take place between the metal of the pipe and the soil as long as the pipe is maintained of a sufficient negative polarity to the soil; that is, as long as sufficient current flow tends to take place from the soil to the pipe. This is accomplished, ordinarily, by the application of alternating current rectifying devices, so installed as to place a low direct-current electromotive force between the pipe and the soil. The devices are designed so as to have a comparatively large current capacity; so that wherever the pipe should unavoidably make contact with the soil, sufficient current will flow from the soil and into the pipe as to prevent chemical action (corrosion) at that point.

In order to be able to guarantee a proper installation for corrosion control in condenser boxes and water tanks, it is necessary to know certain principles connected with the subject. Not only is it necessary for one to know that chemical action between the water and the metal may be prevented by causing a certain value of electrical current to flow from the water to each square inch of the metal surface. It is also necessary for one to know something about how the electrical current distributes itself through the water and to the wide surface of the metal that is to be protected, and how to determine whether some particular portion of the cathode surface is or is not properly protected. Otherwise, it would be impossible for one to know how to place the anode system or how to make tests to prove the efficient operation and the effect of the protective system. Of course, only time can unquestionably prove the effect of the system; but, if the operation of the system is proved to be correct by intelligent tests made at the time of installation, then time will prove only that the installation was a very valuable investment.

Practical Application

The following general facts have been verified by actual tests in the laboratory and in the field:

6. Considering a given body of water; an "anode" placed at the center of the body of water, with the water maintained at a constant temperature, and an unvarying alternating-current voltage maintained between this "anode" and the metal container, the current flow from the "anode" through the water and to the surface of the container is directly proportional to the amount of surface possessed by the "anode." In other words, suppose that we possessed an iron bucket filled with water, and this bucket (cathode) was connected to one side of an alternating-current supply. Immersed in about the center of the body of water is an iron electrode possessing 1 square inch of total surface; and this electrode (anode) is connected to the other side of the alternating-current supply. (We are herewith designating the bucket as the cathode and the center electrode as the anode, although we are using alternating-current in the test.) Upon test, we found that 75 milliamperes flowed between the anode and the cathode through the water.

Upon increasing the total surface area of the anode to 2 square inches, we found that twice 75, or 150 milliamperes flowed between the anode and the cathode through the water. It is therefore apparent that when we increase the value of the total surface area of the anode to twice its original value, the resistance between the anode and the cathode is decreased to one-half of the original value. Vice versa, when we decrease the total surface of the anode to one-half its original value, the resistance between the anode and the cathode is increased to twice the original value.

Should we double the applied voltage in the case of the 1 square inch anode, we find that the current flow doubles in value. We find that the same thing happens when we double the voltage in the case of the 2 square inch anode. Therefore, it is seen that Ohm's law applies to the ratio between the applied voltage, and consequent current flow, and the resistance of the electrolyte between the anode and the cathode; since this resistance is constant, as long as the electrolyte density and temperature and the size and position of the anode does not change.

7. With all portions of the container surface (cathode) at approximately an equal distance from the anode, the current flow to each and every square inch of the container surface is equal; and amounts to the total current flowing from the anode divided by the total number of square inches contained in the container surface making contact with the water.

Strictly speaking, this rule would apply only when a spherical shaped anode is placed at the exact center of a spherical body of water; and, thereby, having all portions of interior surface of the spherical, metallic container of the body of water at an identical distance from the surface of the anode. In other words, under such a spherical condition of experimental elements, a test on the 1 square inch surface of the metallic water container proves that the current flow from the water to that 1 square inch of surface equals the total current flowing from the anode divided by the total number of square inches contained in the interior surface of the container.

8. Moving one portion of the cathode surface nearer to the anode increases the current flow to this particular portion, decreases the current flow to the remaining portions and increases the current flow from the anode.

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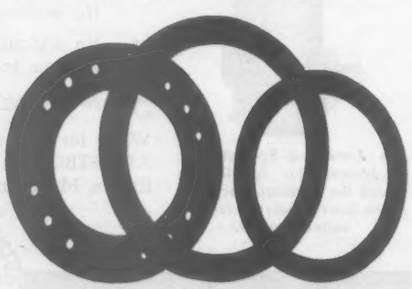

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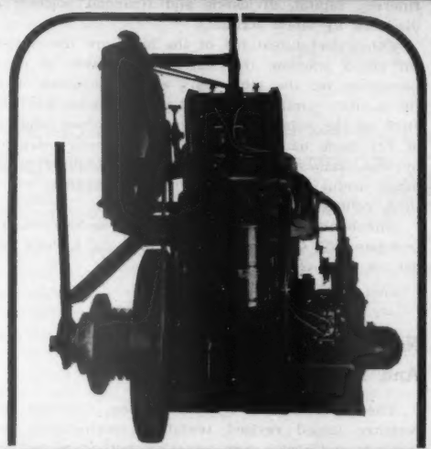

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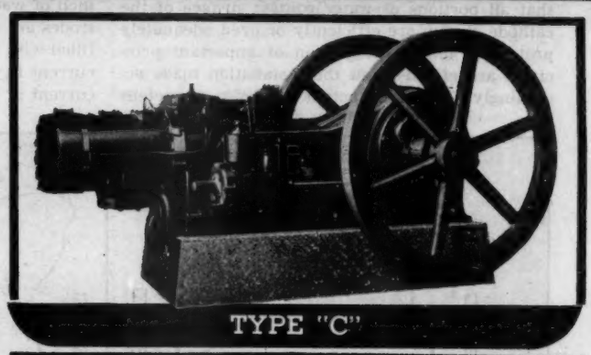

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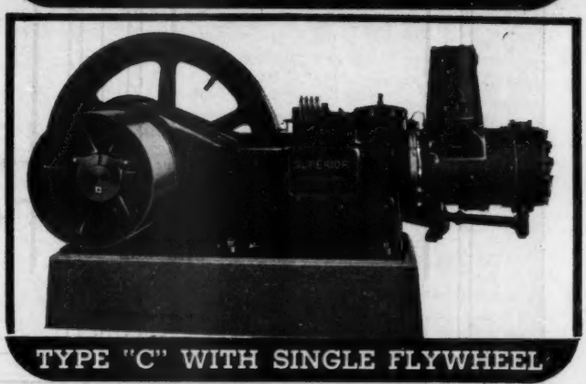

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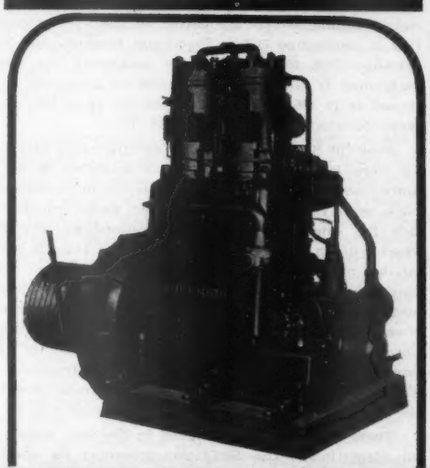

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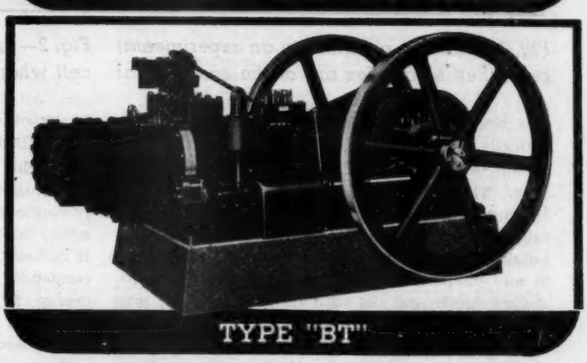

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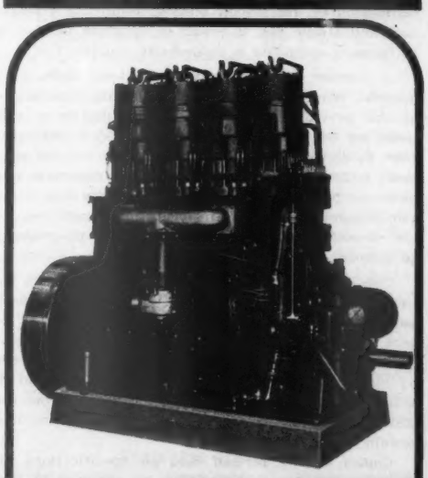

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THE NATIONAL SUPPLY COMPANY

EXECUTIVE OFFICES: PITTSBURGH, PA.
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the calculation of current and voltage conditions in parallel circuits of resistance. Although it is possible that an accurate determination of these conditions, in a field installation, would be a too tedious process to attempt beforehand, it is very apparent that installations may easily be made wherein some portions of the metal to be protected has a great deal more protection than is actually needed; while other portions may not be protected without very inefficient operation of the protective system. A large value of current flow from the anode would not necessarily mean that all portions of water contact surface of the cathode system are efficiently or even adequately protected; unless recognition of important principles are effected and the installation made accordingly. Only final, actual test by a competent and practically experienced engineer will theoretically prove the efficiency and practicability of the design.

9. The following formula has been devised by the author for obtaining the resistance (after obtaining this resistance, the engineer may easily obtain, by Ohm's law, the resulting current flow at any value of applied voltage) between the installed anode and the cathode surface to be protected. The formula is applicable only in such cases wherein the distance between the anode and every portion of the cathode surface is kept as near as possible to the average distance between the anode and all portions of the protected surface. The results should prove fairly accurate for practical purposes, as long as good judgment is used in the placing of the anode in respect to the surface to be protected.

Resistance, in international ohms, between the anode and the total surface to be protected (this total surface to be protected is, of course, considered to be greater in area than the area of the anode surface) equals:

$$R = \frac{CO}{A}$$

where

A = total number of square inches in the anode surface.

C = cube root of the average distance, in inches, between the anode and the cathode.

O = ohms, resistance, between two electrodes, each having 1 square inch of surface in contact with the water, spaced 1 inch apart in a sample of the water to be used in the system. This sample of water should be at approximately the same temperature as in the system.

Measurement of Resistance

Note: It will be recognized that the resistance "O" is not the resistance of 1 cubic inch of the water sample. Actually, a great deal more than 1 cubic inch of water enters into this test, when the electrodes are merely spaced 1 inch apart in a beaker filled with water. It is advisable to use alternating current in testing for this resistance; since direct current or a Wheatstone bridge will possibly give incorrect indications because of the so-called polarizing effect on the surfaces of the test electrodes.

In the electrical control of chemical action in conventional water tanks, the formula 9 is entirely applicable to the design of the anode system for either constant or varying level of water. When it comes to the protection of such properties as condenser boxes and the pipe therein, although the design of the anode system must be made with the principles of the above formula constantly in mind, the necessity of using experienced judgment together with so-called text book data brings the matter to a more complicated status. This does not, by any means, infer that the problem of the protection of such properties is beyond accessible and economical solution. Valuable and reasonably efficient installations of chemical control equipment will be made with such data as should now be available. As time goes on, new data will be presented that will simplify the design and testing of such new installations; as well as allowing an increase in the efficiency and value of present installed systems.

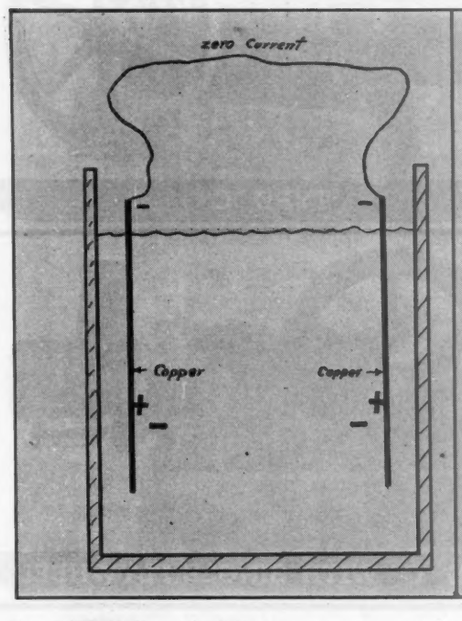


Fig. 1—Existing polarities in an experimental cell when electrodes are of the same metal

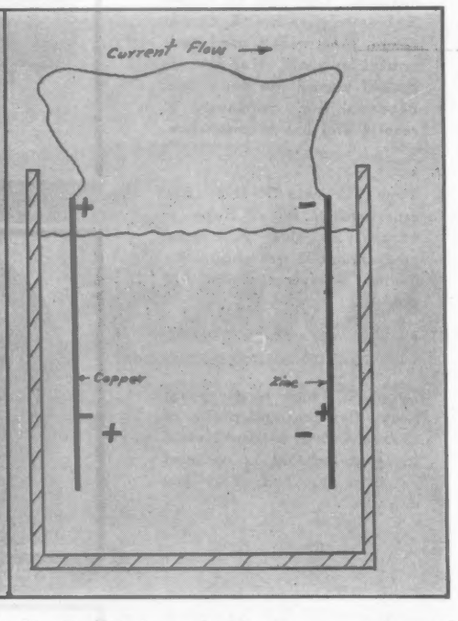


Fig. 2—Existing polarities in an experimental cell when electrodes are of different metals

Oil and Petroleum Year Book

The 1938 issue of the oil and petroleum year book compiled by Walter E. Skinner (which has been published annually in May for the past 29 years), has just been issued. The book covers 536 pages and gives complete and up to date particulars concerning 774 companies engaged in producing, carrying and marketing oil, financing oil development, or directly associated in any way with the oil industry in all part of the world. During the past two years particulars of over 200 companies not previously given have been added.

Lists are given of the officials connected with the companies and comprise 2,733 directors, 365 secretaries and 272 consulting engineers, managers, agents, etc., their names and addresses and company connections. The particulars of each company include the directors and other officials, date established, location of property, or description of business, purchase consideration, oil production, capacity of refineries, capital, dividends and financial position as disclosed by latest accounts.

Other useful features of the book are the statistical tables showing the world's production of crude petroleum for the nine years ended December, 1937, the monthly production for 13 months ended April 30, 1938, of the principal British oil companies, and list of 724 trade names of petroleum products marketed by the various companies. The buyers guide is another useful feature comprising 224 headings of oil field, refinery and equipment.

The book is published by Walter E. Skinner, 15, Dowgate Hill, Cannon Street, London, E.C.4. Price 10s. net, or post free (abroad) 11s.

New A.S.T.M. Specifications And Test Method on Fuel Oil

The American Society for Testing Materials has recently issued revised tentative specifications for fuel oils and also a new tentative method of test for sediment in fuel oil by extraction. These new standards, effective on April 27, were approved by the society's committee on standards on the recommendation of Committee D-2 on Petroleum Products and Lubricants. The test method for sediments has been designated D 473-38 T and the fuel oil standards continued as D 396 with a change in the year, the complete designation being D 396-38 T.

Fuel Oil Specifications—The specifications for fuel oil were issued the first time as tentative in 1934. Since then a number of suggestions for improvements have been received and have been under consideration for some time. The specifications as now revised will, in the opinion of Committee D-2, fit present-day needs better than those originally issued. The new specification provides for five grades of oil instead of six as in the old requirements. Certain changes in the methods of testing have been incorporated, including for Grade No. 6 the use of the new test for sediment in fuel oil by extraction (D 473-38 T) which is based upon the methods used by the Federal Specifications Board for many years.

There has also been included in the new standard an adaptation of the distillation procedure for obtaining 10 per cent residuum for determination of carbon residue in Grades Nos. 1 and 2. Grade No. 1 covers a distillation oil for use in burners requiring a volatile fuel and Grade No. 2 covers a distillate oil for use in burners requiring a moderately volatile fuel.

A number of modifications have been made in the detailed requirements for oil, including the deletion of the previous Grade No. 4. The maximum flash point for No. 1 has been raised to 165° F. instead of 150° F. as previously, and for No. 3 grade the maximum is 230° F. instead of 200° F. The minimum flash point for No. 5 Grade, a medium viscosity fuel is now 130 or legal in place of the prior 150. Grade No. 3, a low viscosity fuel, has a new maximum pourpoint of 20 instead of 15 as previously.

The maximum carbon residue requirement for Grade No. 1 is 0.05 per cent on 10 per cent residuum but this can be increased to a maximum of 0.12 per cent when the oil is to be used in other than sleeve-type blue-flame burners. The limit may be specified by mutual agreement between the purchaser and the seller. For Grade 2, the 0.25 maximum on 10 per cent residuum can be reduced to 0.15 per cent to meet certain burner requirements.

Copies of the revised fuel oil specifications and the new test for sediment can be obtained in separate pamphlet form from A.S.T.M. Headquarters, 260 South Broad Street, Philadelphia, Pa., at 25 cents each. Reduced prices apply on orders in quantity.

Progress in METALS

By W. L. NELSON

Metals Used in Pipe Line Construction and Operation

Abstract of paper of same title presented by Lewis F. Scherer, chief engineer of the Texas Pipe Line Co., before the Western Metal Congress at Los Angeles.

Most of the pipe in use today is plain carbon steel containing about 0.3 per cent carbon. A higher carbon content may result in weaker welds and hence nullify the greater strength of the high-carbon steel pipe. The strength of the line is more dependent on the type of pipe and joint used, than upon differences in the kind of steel employed. For severe corrosive service, cast iron, wrought iron and copper-bearing steel pipe are used but this use is not extensive.

Welding has superceded the use of couplings except for field lines. Likewise, elbows, tees, etc., are now replaced by cutting the pipe at an angle and welding directly. Forged fittings, which are cheaper than welding directly on the job, are also being employed. Forged welding-flanges are replacing screw-type cast iron flanges because of the greater resistance to shock.

Valves

Gray cast iron is used almost universally for the bonnets and bodies of valves. However, the tendency has been to decrease the carbon content which results in a finer grain-structure iron having a greater shock resistance. These irons are referred to as "semi-steel" irons. Bronze seat rings have been most successful so far, and most failures appear to occur because of sand particles or scale becoming lodged on the seat. Manganese bronze stems are most suitable for small valves but stronger steel stems are used for large valves.

Diesel Engines

Diesel engines constitute one of the major maintenance costs. Cylinder heads are usually made of cast iron but cast steel heads are proving more satisfactory. Fine gray iron is used for liners but engineers are turning more and more to centrifugally cast liners and electric furnace iron. The regular gray iron liners have a hardness of 200-260 Brinell, and maximum sulfur and phosphorus contents of 0.11 per cent and 0.35 per cent. Pistons of "semisteel" cast iron containing less than 0.1 per cent of sulfur and 0.3 per cent of phosphorus but hardened to only 200-225 Brinell are most desirable.

The presence of corrosive and abrasive material in many crude oils, necessitates the use of special corrosion resistant materials for the plungers of fuel pumps rather than the customary high-carbon steel plunger. Nitralloy "G" with a hard nitrided surface appears to be a much more suitable material. Wing-type valves constructed of cold-rolled steel, fail rapidly by corrosion and are being replaced by 18-8 stainless steel valves.

Injection Nozzles

Fuel injection nozzles are no end of trouble, and nickel cast iron or stainless steel nozzles are necessary. Two types of stainless steels which have prolonged the nozzle life by 400 per cent are tabulated below:

STAINLESS STEELS

	Hardenable	Nonhardenable
Carbon, per cent	0.3-0.4	0.08-0.2
Manganese	0.3-0.6	0.4 -0.65
Phosphorus, max.	0.3	0.1
Sulfur, max.	0.3	0.15
Chromium	12-15	17-19
Nickel	....	7- 9

Bearing Metals

Bearings are troublesome unless the very best grade of babbitt is used and they must be poured carefully. S.A.E. 3140 heat treated and tempered bolts are better than carbon steel bolts for connecting rod bolts. The carbon steel bolts fail by fatigue.

Repressuring Pumps

Horizontal duplex and triplex double-acting reciprocating pumps are used for this service. Cast iron or forged steel billets of the composition given below are used for the body of the fluid end. The forged steel billet type is more resistant to fatigue than cast iron.

	Cast iron	Forged steel
Silicon	1.5%	0.2%
Sulfur	0.1	0.03
Manganese	1.0	0.6
Phosphorus	0.17	0.4
Carbon	2.5	0.3

Such a cast iron has a strength over 45,000 pounds per square inch and for a cast metal is relatively free from segregation or porosity.

Plungers are usually specified in the same type of cast iron as the fluid end, but severe service conditions may require a modification of the above to a silicon content of 1.25 per cent and a total carbon of 3.1 per cent, and under extreme abrasive conditions a high-carbon iron containing nickel may increase the life three fold. Frames are usually cast out of a soft ductile iron such as the following:

Silicon	2.4%	Sulfur	0.07%
Manganese	0.6	Phosphorus	0.3
Total carbon	3.5		

However, such a frame tends to stretch in service and hence steel tie-rods, preloaded where possible, so that the frame will always be under compression, are advisable.

Pump Valves

Pump valves are subject to the scoring action of sand and shale, and hence very hard alloys are necessary. The following manganese bronze has been satisfactory for wing type valves for handling sweet crude oils:

Copper	68%
Zinc	22
Manganese	3
Aluminum	5
Iron	2

Valves faced with No. 6 Stellite or similar material greatly reduce errosive action but there is still difficulty in acquiring the welding technique that is necessary in avoiding destruction of the original heat treatment of the body of the valve. The use of hardened or resistant materials for removable discs or faces is common. Carburized nickel steels and Bakelite type materials have been used. A Bakelite insert with cap and guide of S.A.E. 3115 or 3140 steel heat treated to a Brinell of 350—and working on a replaceable steel seat of S.A.E. 3115, 3110 or 4115, carburized to a Brinell of 600 has had considerable success.

Centrifuged Pipe Line Pumps

The casings of these pumps is usually constructed of a dense clean cast iron of about the following composition:

Silicon	1.4%
Sulfur	0.07
Manganese	1.0
Phosphorus	0.3
Total carbon	3.35

The success of such a casting is dependent on good foundry practice because the casting is intricate, rather thin and the passageways must be smooth.

Impellers are usually cast of leaded phosphorus-bronze (75 Cu, 15 Pb, 10 Sn) equipped with replaceable steel wearing rings both at the eye and at the hub for increased wear resistance. The casing rings are usually of the same composition as the impellers and are replaceable.

Shafts and shaft sleeves present difficulties because of abrasive action and because of improper packing. Shafts were originally constructed of high carbon steel but heat-treated, fully normalized alloy steels are now employed. Nitralloy or carburized steel with a deep case, are probably the best known materials for shaft sleeves although much improvement can still be made.

Miscellaneous

The engine jacket water is commonly cooled in shell and tube type exchangers. Steel tubes are rapidly attacked by galvanic action and pitting, admiralty metal tubes suffer by dezincification, and at present red brass containing 15 per cent of zinc and 85 per cent copper is being specified. Centrifugal cooling water pumps are used for handling the water and these are usually standard bronze fitted except that monel metal shafts and wearing rings are specified.

Storage tanks involve such large tonnages of metal that no economical substitutes for plain steel have been found. However, certain appurtenances are being constructed of alloys for resisting sour crude oils. Copper-bearing steel is used for swing pipes, "Korodless" wire cable for lifting the pipe, and cast iron or aluminum for conservation vents.

One of the major interests of pipe line engineers is the development of welding practice. In many instances such as tankage, pipe lines, etc., the adoption of welding has been delayed because of inadequate means of detecting a faulty weld and because of the inefficiency of some of the joints. If the welding art could be extended to the welding of steels of higher carbon content, tremendous savings in the thickness of pipe now required in lines and vessels could be effected.

Collapse Tests on Casing

Data on the strength of cylinders when exposed to external pressure are relatively scarce and hence the following tabulation of actual laboratory tests on heat-treated casing of the Republic Steel Co. is shown in the following tabulation:

Outside diameter (inches)	Nominal wall thickness (inches)	Collapse pressure (lb. per sq. in. gauge)*		Setting depth based on a safety factor of 2
		Open end	Closed end	
5½	0.304	7,405	7,912	7,400
6⅝	0.385	7,930	7,835	7,800
7	0.332	6,585	6,745	6,500
7	0.362	7,582	....	7,500
8⅝	0.352	4,508	4,527	4,500
8⅝	0.425	7,140	7,225	7,100
9⅝	0.435	5,420	5,815	5,400
10¾†	0.400	3,600	3,527	3,600

*Average of two or more tests. †Not heat treated.

These tests were conducted in equipment for testing open-end casing, and for the closed-end tests the specimen was entirely enclosed within the pressure chamber. The general appearance of the specimens after testing is indicated in Figure 1. The welded joint did not appear to be either weaker or stronger than the regular wall.

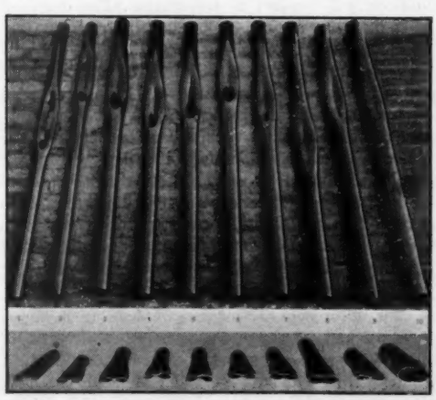


Fig. 1—Appearance of casing after being tested

Composition of Lubricating Oil

By F. L. CARNAHAN
Pennsylvania State College*

For several years the petroleum refining laboratory at the Pennsylvania State College has been investigating the composition of Pennsylvania and other oils. As is usually the case, the research operations have become more and more analytical as they have progressed; in other words, the oils have been taken to pieces and the pieces examined; year by year the pieces have become smaller and more nearly homogeneous. Newly devised equipment and procedures have made this development possible.

Unlike many crude oils, Pennsylvania Grade crude is nearly free of sulfur, nitrogen and oxygen, a circumstance of nature. The crude may be described as a mixture of hydrocarbons ranging from the simplest to the most complex. Since we are especially concerned with the composition of lubricating oils, let us consider a molecule having 25 carbon atoms and 52 hydrogen atoms with a view to finding out in how many different ways these atoms may all be hooked together without violating any chemical conventions. Knowing that a carbon atom weighs 12 times as much as a hydrogen atom, we find that this hydrocarbon weighs 352 times as much as a hydrogen atom. In more technical language it would be said that the molecular weight is 352. This molecular weight is characteristic of the middle portion of 180 neutral. Though the compound we have chosen is really a wax instead of an oil, it serves well for illustration. If an attempt is made to record in how many ways 25 carbon atoms and 52 hydrogen atoms may combine in keeping with the rules applying to such combinations, it is found that a physically impossible task has been set and we must resort to calculation. Thereupon it is found that almost 37,000,000 combinations are possible. This astonishing result applies to only one type of molecule containing 25 carbon atoms. Actually 25 carbon atoms may unite not only with 52 hydrogen atoms, but with 50, 48, 46, etc., to give more millions of variations. Furthermore, the molecules of a given lubricant will vary in their carbon content. It is not unlikely that the nature of the starting substances and the directive forces involved in petroleum formation have tended to give a material less complex than it might be but extensive research has furnished no basis for assumption of a simple composition.

Though discovery of the molecular arrangement of any of the hydrocarbon constituents of lubricating oil cannot be early anticipated, a great deal of progress has been made in the classification of these compounds. As has been indicated, the molecules differ in weight or size as well as in type. Experimental methods of classification depends usually upon sorting out the molecules according to size or to type.

The boiling points of hydrocarbons depend largely upon their molecular weights. If a sample of oil is boiled and the initial vapor formed is condensed, the distillate so obtained possesses a greater proportion of the smaller molecules than existed in the original oil. This is a rough method of separation; the classification according to molecular size is much sharper when fractionating columns are used. The effect of many vaporizations is obtained in a single fractionating column. The first process may be said to compare to fractionation as a one-tube radio does to a sixteen-tube assembly. One tube may pick out of the air the most powerful notes but 16 tubes will permit greater selectivity.

A column largely automatic in action is used for our laboratory fractionations. A vacuum is drawn on the system to permit the oil to boil at lower temperatures. This is especially necessary for Pennsylvania oils with their high boiling points.

The properties of cuts obtained from a Pennsylvania oil are shown in Table 1. As distillation proceeds, the cuts become more viscous and lower in A.P.I. gravity. Molecular weight is increasing at the same time. However, each cut is of substantially the same molecular type as evidenced by the viscosity and gravity indexes. These indexes are intended to be independent of the size of the molecules in the oil. The viscosity index is a measure of rate of change of viscosity with temperature and was set at 100 for Pennsylvania oils on account of their superior characteristics in this respect. The gravity index is a relationship between gravity and viscosity at 100° F.; like the viscosity index it has a value of about 100 for Pennsylvania oils.

Not all oils are revealed on distillation to be so uniform and homogeneous in molecular type as are Pennsylvania oils. In Table 2 data are presented for the fractionation of an oil having a viscosity index of 45 and a gravity index of 28. Here again viscosity increases and A.P.I. gravity goes down as the distillation proceeds. Once more an oil is being separated according to molecular weight or size. But notice the nonhomogeneous nature of these cuts in regard to molecular type. From an oil having a viscosity index of 45, cuts ranging from —19 to +48 and bottoms with a viscosity index of 89 are obtained. The gravity index of the original oil is 28 but this item varies from 15 to 37 for the cuts and has a value of

TABLE 1—VACUUM FRACTIONATION OF A PENNSYLVANIA OIL

	Per cent by weight	Saybolt viscosity seconds 210° F.	Saybolt viscosity seconds 100° F.	A.P.I. gravity	Viscosity index	Gravity index
Original	100.00	53.9	325	30.0	105	104
Cut 1	5.10	38.7	101.0	31.5	105	100
Cut 3	4.54	41.3	135.7	31.3	99	100
Cut 5	4.29	43.4	165.4	31.1	100	100
Cut 7	4.37	45.0	190.8	31.1	100	100
Cut 9	4.52	46.6	216	30.9	99	100
Cut 11	1.25	47.4	229	...	98	...
Cut 13	4.45	48.7	250	30.8	98	100
Cut 15	1.25	50.1	272	...	99	...
Cut 17	4.54	51.9	300	30.7	100	100
Cut 19	3.91	55.7	363	30.4	100	100
Bottoms	...	203.8	3,730	26.0	101	110

TABLE 2—VACUUM FRACTIONATION OF A COMMERCIAL OIL

	Per cent by weight	Saybolt viscosity seconds 210° F.	Saybolt viscosity seconds 100° F.	A.P.I. gravity	Viscosity index	Gravity index
Original	100.00	42.5	186.6	22.4	45	28
Cut 1	7.10	34.2	62.6	24.5	48	...
Cut 2	7.29	35.9	84.7	22.5	22	22
Cut 3	7.16	36.0	85.9	22.1	19	20
Cut 4	7.28	37.3	106.2	21.8	17	15
Cut 5	7.27	39.4	140.9	21.7	15	20
Cut 6	7.21	41.7	192.8	21.7	9	20
Cut 7	7.33	44.3	257	21.5	6	24
Cut 8	7.52	48.0	370	21.2	0	28
Cut 9	7.80	54.9	620	20.5	—12	29
Cut 10	7.88	60.6	1,025	19.7	—19	27
Cut 11	7.83	69.8	1,195	20.2	— 3	37
Bottoms	6.54	194.6	4,245	22.8	89	80

TABLE 3—MOLECULAR TYPES IN VARIOUS OILS

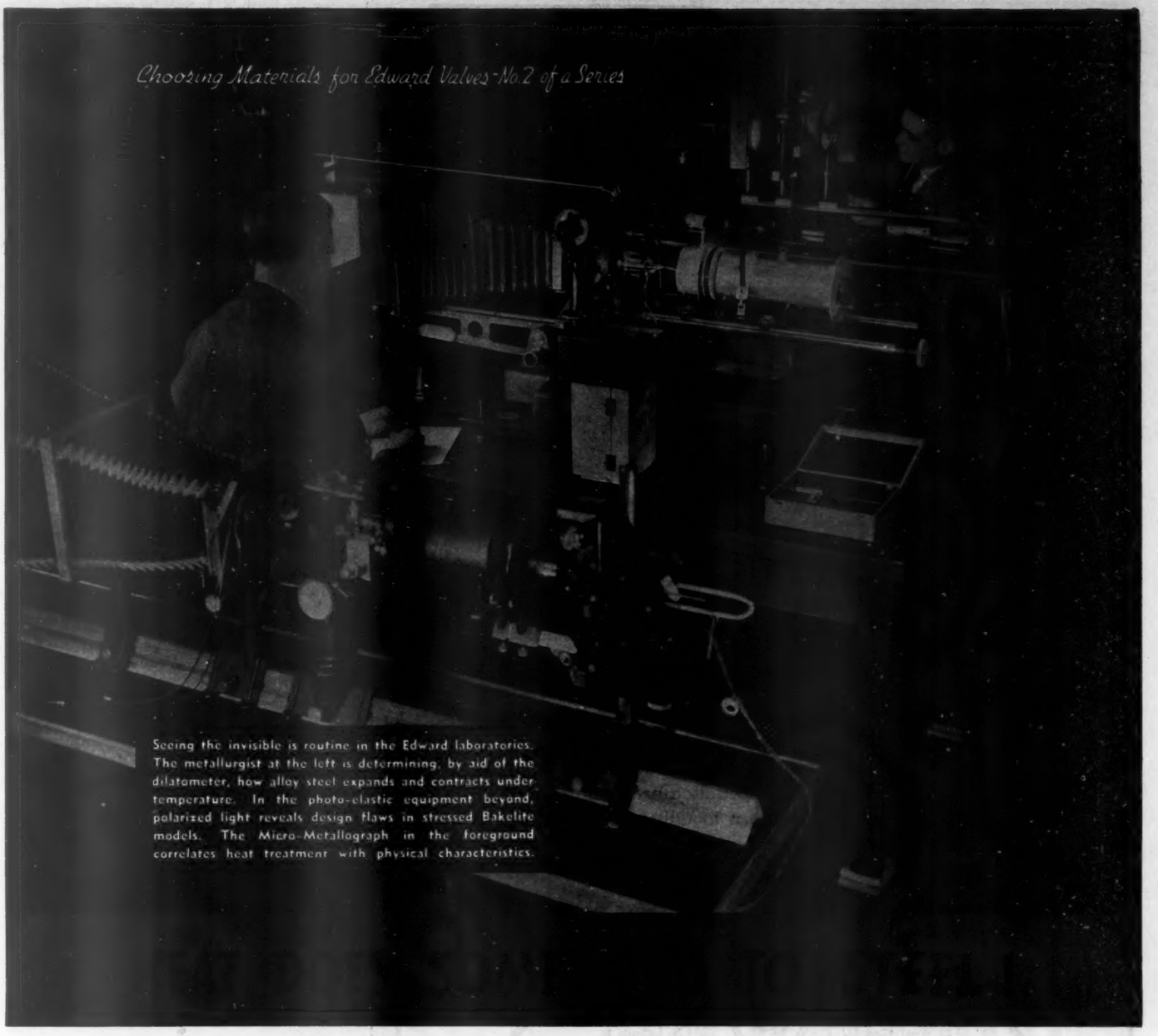
Oil—	Saybolt viscosity sec., 100° F.	Viscosity index	Per cent carbon atoms in— Automatic rings	Cycloparaffin rings	Paraffin side chains	Ratio of two preceding values
Pennsylvania neutral	185.6	101	9	15	76	5.06
Pennsylvania neutral	202	97	10	14	76	5.43
Pennsylvania bright stock	2520	99	9	13	78	6.00
Mid-Continent neutral	207	73	11	25	64	2.56
Mid-Continent extra neutral	202	98	5	22	73	3.32
Western extra neutral	171	101	0	31	69	2.22
Synthetic hydrocarbon (Mikeska)	204	99	33	0	67	...
Rangoon wax (Waterman)	...	...	0	0	100	...

TABLE 4—REFLUX EXTRACTION OF A PENNSYLVANIA NEUTRAL

	Per cent by weight	Saybolt visc., seconds 210° F.	Saybolt visc., seconds 100° F.	Viscosity index	A.P.I. gravity	Per cent carbon atoms in— Aromatic rings	Cycloparaffin rings	Paraffin side chains
Original	100.0	44.8	185.6	101	30.2	9	15	76
Cut 1	4.54	54.3	656	—37	16.0	44	2	34
Cut 5	4.48	44.9	211	73	26.3	17	17	66
Cut 10	4.29	41.3	128.1	115	32.9	0	23	77
Cut 15	4.27	43.0	143.4	122	34.3	0	19	81
Cut 20	4.22	48.1	207	123	34.4	0	17	83
Res. + hold-up	5.58	52.4	261	124	33.8	0	15	85

*Presented before annual meeting Pennsylvania Grade Crude Oil Association at Pittsburgh, Pa.

Choosing Materials for Edward Valves-No. 2 of a Series



Seeing the invisible is routine in the Edward laboratories. The metallurgist at the left is determining, by aid of the dilatometer, how alloy steel expands and contracts under temperature. In the photo-elastic equipment beyond, polarized light reveals design flaws in stressed Bakelite models. The Micro-Metallograph in the foreground correlates heat treatment with physical characteristics.

If a valve can stand heat it can, roughly speaking, stand anything. So Edward has spent years finding out what heat does to steel. The problem is two-fold: (1) how metals react to high service temperatures; and (2) in what ways ordeal by fire—heat treatment to us—modifies the properties of materials. Fortifying Edward products against arduous service is the objective.

To "blow up" steel under high-powered lenses . . . to check its thermal vagaries . . . to harmonize the sometimes conflicting requirements of design and stress . . . are the functions of Edward technicians. Three pieces of equipment which facilitate the quest of facts about the relations between heat and steel are shown above. By them and many other means Edward translates metallurgical theory into better valves.

• • •

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One advantage of the Oliver Precoat Filter is showing up even more strongly than when the first commercial unit was installed well over a year ago. *Oil Loss* in the filter cake is so far under that in a batch pressure filter cake that there is no comparison.

This low oil loss, combined with several other advantages such as continuous operation, clarification in one pass, and such long cloth life as to practically eliminate cover maintenance . . . all these point to Oliver Precoat Filtration as *the* method for oil refineries.

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Large, Totally-Enclosed Oliver Precoat Filter Recently Shipped to an Oil Refinery

80 for the bottoms. It may be noted also that this product had a flash point of only 300° F. and a fire point of 360° F.

The more efficient the distillation process employed the sharper is the separation of the oil molecules according to molecular weight. A very great deal has been done, is being done, and will be done along this line. The possibilities of laboratory and commercial fractionation have by no means been fully explored and exploited. It is now necessary, however, to advert to the question of molecular type as distinct from molecular size.

Classification of Oils

In classifying oils according to type, the percentage of carbon atoms in aromatic rings, in cycloparaffin or naphthene rings and in paraffinic side chains are often listed. This is accomplished by the use of certain data in the literature and experimentally determined properties of the oil.

In order to illustrate various types of molecule it is convenient to deal with simple hydrocarbons such as those containing six carbon atoms. n-Hexane, C_6H_{14}, contains all its carbon atoms in a straight chain and contains a greater proportion of hydrogen to carbon than the other hydrocarbons with six carbon atoms. Cyclohexane, C_6H_{12}, has its carbon atoms arranged in a ring with each carbon holding two hydrogens. Hexene, also C_6H_{12}, is a type considered not to be present in crude petroleum. The aromatic type with six carbon atoms is benzene, C_6H_6. Each carbon atom holds only one hydrogen.

The average distribution of carbon atoms in the molecules of various oils is shown in Table 3. Once again the uniformity of the Pennsylvania oils is worthy of note. Carbon atoms are distributed in just about the same way in neutral and in bright stock.

The oil designated as a Western extracted neutral probably represents a small yield from the original stock since it had viscosity and gravity indexes similar to those for Pennsylvania oil. However, its composition is seen to be quite different. This may be shown by calculating the ratio of the percentage of carbon atoms in paraffinic side chains to those in cycloparaffin rings. The value is found to be 2.2 as compared to an average of 5.5 for the Pennsylvania oils listed. The corresponding value for the conventionally refined Mid-Continent oil is 2.56 and that for the extracted Mid-Continent product is 3.32.

With the exception of the Mid-Continent neutral, all the oils in Table 3 have about 100 vis-

CONSTRUCTION DIFFICULT

In the new Centralia field of Illinois wells are being drilled close to dwellings. It is difficult to locate the slush pit to serve this well

cosity index. A synthetic hydrocarbon of about the same viscosity and viscosity index is included to illustrate that widely different compositions may give nearly the same physical properties in several respects. This synthetic oil may be represented as having 33 per cent of the carbon atoms present in aromatic rings and 67 per cent in paraffin side chains. This composition may be contrasted with the Western extracted neutral which has 31 per cent of the carbon atoms in cycloparaffin rings and 69 per cent in paraffinic side chains.

Solvent Extraction

In recent work in the petroleum refining laboratory a very efficient method of treatment has been used with acetone as the solvent. The original oil is placed in a 5-gallon vessel at the base of a counter-current contacting column. Solvent is pumped through the oil and rises to the top with the more soluble components of the oil in solution. The acetone-oil solution overflows and passes to a boiler where the solvent is distilled from the oil, condensed and recirculated. The oil obtained from the boiler is pumped back into the top of the tower and operation is continued in this way until equilibrium is attained. The extract oil is then collected in an amount equal to 4 or 5 per cent or any other desired fraction of the original oil. Eventually the charge is split up into about 20 fractions.

It is possible to apply many distillation principles to solvent extraction procedures. Just as the introduction of condensate as reflux permits good fractionation, the introduction of extract oil as reflux to a solvent extraction column allows efficient separation of oils as to type. Drawing upon the radio analogy mentioned previously, a process wherein oil and solvent are mixed, allowed to settle and withdrawn would compare to a one-tube radio while the reflux process described could be likened to a sixteen-tube job. This outfit, the first of its kind, was devised and fabricated in this laboratory.

Properties of several cuts obtained in the reflux extraction of a Pennsylvania neutral are given in Table 4; corresponding data for a Mid-Continent neutral as seen in Table 5. The molecular types separated in this manner are of interest. Hydrocarbons with a high proportion of aromatic rings are the most soluble and come out especially in the first cuts. As separation proceeds, the proportion of carbon atoms in cycloparaffin rings decreases but some rings must exist in the molecules—if all the carbon atoms were in paraffin chains we would have a wax and not an oil.

Along with its disclosure of the types of molecule present, reflux extraction shows the distribution of the components of the oil according to viscosity index. As an extraction proceeds the cuts have greater paraffinicity and higher viscosity indexes, these properties being interrelated. By reference to Table 6 it is evident that Pennsylvania oils contain an unusually great proportion of high viscosity index constituents. For example, a 200 Pennsylvania neutral has about four times as much material present of 120 or greater viscosity index as does a Mid-Continent neutral of about the same viscosity.

In some recent work distillation and extraction procedures have been combined. A fraction with a limited range of molecular weight is subjected to the solvent extraction process mentioned. The combination of the two methods of attack gives a particularly intimate picture of oil constitution.

High viscosity index, high boiling points, high A.P.I. gravities, high flash and fire points, all properties characteristic of Pennsylvania oils, have their origin in the high paraffinicity or distinct chemical composition of these products. Oiliness also depends to a great extent on chemical composition.

A discussion of molecular types is by no means of academic interest only. Just recently

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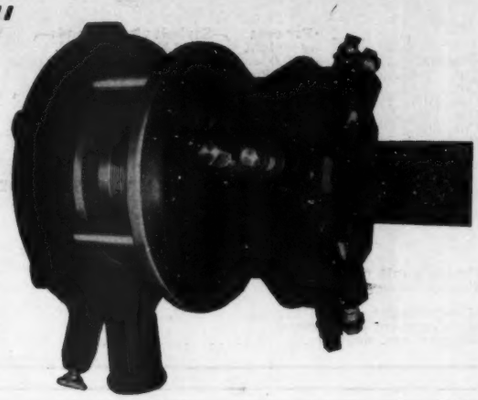

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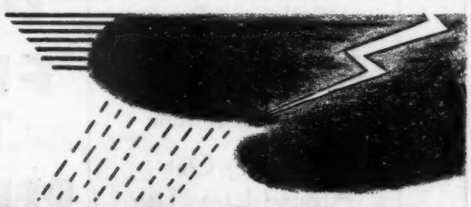

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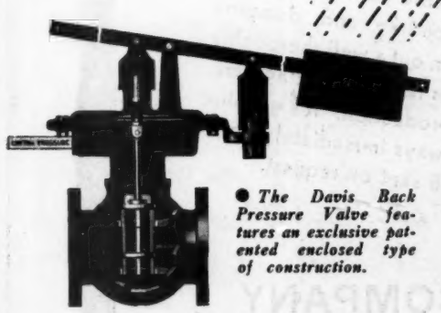

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TABLE 5—REFLUX EXTRACTION OF A MID-CONTINENT NEUTRAL

	Per cent by weight	Saybolt visc., seconds 210° F.	Saybolt visc., seconds 100° F.	Viscosity index	A.P.I. gravity	Per cent carbon atoms in— Aromatic rings	Cyclo-paraffin rings	Paraffin side chains
Original	100.0	44.6	207	73	26.2	11	25	64
Cut 1	3.79	52.3	600	—49	15.5	33	19	48
Cut 5	4.73	52.1	576	—40	16.7	32	23	45
Cut 10	4.33	43.3	179.2	78	27.7	4	36	60
Cut 15	4.29	42.0	142.4	105	31.8	0	30	70
Cut 20	3.00	43.4	154.2	115	33.1	0	25	75
Res. + hold-up	8.89	44.7	163.3	124	34.1	0	20	80

TABLE 6—HIGH VISCOSITY INDEX CONSTITUENTS IN OILS

	Saybolt viscosity seconds 210° F.	Saybolt viscosity seconds 100° F.	Viscosity index	A.P.I. gravity	Per cent by wt. of constituents with V.I. of 120 or more
Pennsylvania neutral	44.8	185.6	101	30.2	50
Pennsylvania neutral	45.6	202	97	29.8	40
Mid-Continent neutral	44.6	207	73	26.2	10
Mid-Continent ext. neutral	45.7	202	98	30.6	0
Western ext. neutral	43.8	170.8	101	31.1	0

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the results of Kadmer[1] have indicated that the lubricating power of an oil is a function of the proportion of carbon chains to carbon rings. Sliding friction is produced by two crossed rolls of steel driven electrically. With oils matched in viscosity it is stated that the difference in lubricating power appears to depend upon the chemical structure of the hydrocarbons. Quoting from the abstract—"According to the data from testing with the Thoma machine as a whole, the paraffin-rich mineral oils are better lubricants than aromatic oils; and there is an unmistakable relation between the coefficient of friction on one hand and specific gravity, refraction, aniline point and proportion of carbon rings to carbon chains, on the other."

[1]Kadmer, Oel Kohle Erdoel Teer 14, No. 8, 147 (1938); Universal Oil Products Co., Library Bulletin of Abstracts 13, 60 (1938).

Oil-Burning Locomotive Makes Long Trip Without Change

An oil-burning steam locomotive recently established what is believed to be the longest continuous run by a steam locomotive in regular passenger service. An engine of the Atchison, Topeka & Santa Fe Railroad made the 2,227-mile run from Los Angeles to Chicago at an average speed of 45 miles an hour. Ordinarily this train requires four locomotive changes. The route includes some of the steepest grades on any railroad in this country.

By the use of oil-burning engines the railroads are meeting modern demands for increased speeds. Fast-burning and efficient fuel oils and automatic lubrication are important factors in the new high-speed engines.

Realizing this trend, the petroleum industry has developed new types of fuel oil to meet the railroad's needs. More than 55,000,000 bbls. of these oils, available in different grades, are used by the railroads every year. More than 6,000 oil-burning locomotives, including diesel electrics, are powered by petroleum.

The development of automatic lubrication for locomotives is an outgrowth of the swing toward longer runs. Locomotives equipped with mechanical lubricators need less terminal servicing. Special lubricants keep the engines running smoothly at climatic temperatures which may vary over a range of 100 degrees on a single trip.

New fuel oils and lubricants produced by the petroleum industry are hastening the railroads towards their goal of fast, economical and comfortable travel.

Compulsory Blending of Alcohol With Gasoline in Germany

A decline, possibly to be followed by further easement of requirements, has set in the compulsory blending of alcohol with gasoline for sale in Germany. At the present time 8.5 per cent of alcohol and methanol must be blended with motor fuel sold in the Reich, excepting gasoline for aviation consumption.

The admixture of alcohol was at first required in 1930 as a measure of relief for the potato and beet growers of East Prussia who could thus dispose of their surplus crops for the manufacture of ethyl alcohol. The percentage of admixture was increased up to 10 per cent by the end of 1932 where it remained until reduced to 8.5 per cent on October 1, 1937. However, the position with regard to the potato crop had in the meantime changed.

The following table gives a historical summary of the admixture requirements on motor fuel in Germany:

Date effective—	Per cent admixture	Per cent composition of admixture: Ethyl alcohol	Methanol
August 1, 1930	2.5	100	....
April 1, 1931	3.5	100	....
October 1, 1931	6.0	100	....
December 1, 1932	10.0	100	....
January 1, 1936	10.0	90	10
June 1, 1936	10.0	80	20
May 1, 1937	10.0	66⅔	33⅓
October 1, 1937	8.5	66⅔	33⅓

ARE YOUR SWEETENING COSTS AS LOW AS THEY SEEM?

Depreciation in quality during sweetening need no longer be accepted. PERCO'S COPPER SWEETENING has substantially eliminated the disadvantages inherent in old-fashioned sweetening methods.

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LICENSING REPRESENTATIVE

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Heat Exchanger Calculations

In considering an installation of heat exchange equipment some of the factors of importance are: Throughput or velocity of fluids; gravity and water content of emulsion; entrance and exit temperatures given or desired for both fluids; probable values of the mean transmittance or heat transfer coefficient; area of heating surface; pressure losses; and effect of any corrosive influence. Of course, the throughput rates are usually established and with the fluid characteristics indicate the limits of size so far as pressure loss is concerned. Probable effective values of the heat transfer coefficient may be assumed from experience or obtained from the manufacturer who may also furnish data on temperature ranges and fluid velocity as well as pressure loss and corrosion effects. Such an infinite amount of heating surface would be required to utilize all the heat available, it is obvious that the economical amount to install is determined by consideration of the actual value per unit heat output in each instance.

Since calculations of heat transfer involving the interrelation of temperatures, velocities, surface areas, and variations in the heat transfer coefficient, etc., are subject to errors of at least 10 per cent, the following example will illustrate practical approximations. More exact and detailed mathematical treatment may be obtained from a study of various reference volumes.

In the case of a counter-flow heat exchanger having 13,300 pounds hourly of 166° F. waste water available to use in heating 230 bbls. hourly of emulsion from 91 to 107° F., how much surface will be required and what will the exit temperature of the waste water be? The emulsion is 16.5 per cent water and gravity of the oil content is 27 degrees A.P.I.

Heat Required to Raise Emulsion 1° F.

The heat required by the water phase of the emulsion will be 16.5 per cent of the 230 bbls. hourly multiplied by the weight in pounds per barrel and by the specific heat in B.t.u. per pound as follows:

$230 \times 0.165 \times 350 \times 1.0 = 13{,}300$ B.t.u./h

The heat required by the oil is calculated in the same manner but using weight per barrel and specific heat for 27-degree A.P.I. oil at a mean temperature of 99° F.

$230 \times (1.0\text{-}0.165) \times 312 \times 0.458 = 27{,}500$ B.t.u./h

$13{,}300 - 27{,}500 = 40{,}800$ B.t.u./h

Then the total heat required to heat the emulsion is,

$(107\text{-}91) \times 40{,}800 = 654{,}000$ B.t.u./h

Heat Lost by Waste Water Per 1° F.

$13{,}300 \times 1.0 = 13{,}300$ B.t.u./h

Hence, the probable temperature drop of the waste water with 100 per cent effectiveness would be,

$$\frac{654{,}000}{13{,}300} = 49° \text{ F.}$$

However, since experience indicates the net effectiveness is about 85 per cent $\frac{49}{0.85} = 58°$ F.

Thus, 166-58 or 108° F. will be the exit temperature of the waste water.

The mean temperature difference (Δt_m) may now be calculated by use of the following equation:

$$\Delta t_m = \frac{(T_1 - t_2) - (T_2 - t_1)}{2.303 \log \left(\frac{T_1 - t_2}{T_2 - t_1}\right)}$$

Where

T_1 = entrance temperature of warmer fluid, F
T_2 = exit temperature of warmer fluid, F
t_1 = entrance temperature of cooler fluid, F
t_2 = exit temperature of cooler fluid, F

In this case:

$$\Delta t_m = \frac{(166 - 107) - (108 - 91)}{2.303 \log \left(\frac{166 - 107}{108 - 91}\right)} \text{ or } 34° \text{ F.}$$

Average Depth of Wells

I am attempting to find out if there have been any statistics compiled as to the average depth of oil wells completed throughout the years. We know, of course, that wells are continually increased in depth, but I am anxious to find some statistics to back up this assumption.—H. P. B.

The only way in which your question could be accurately answered would to be secure the weighted average depth of wells in the numerous oil fields in this country which would entail a great deal of work and I do not know that such statistics have been compiled.

However, I do have access to data covering average depths of wells drilled in various oil provinces up to 1929 and have taken from The Oil and Gas Journal and other records information concerning wells drilled since that time and have compiled the following table:

Area—	Range of depths	Average depth	Number of producers Jan. 1, 1938
Appalachian	50- 7,826	2,000	106,920
Lima-Indiana	90- 5,908	1,400	32,800
Michigan	500- 5,575	3,500	1,820
Illinois Basin	400- 5,190	1,500	28,290
Oklahoma	400-11,230	4,250	55,074
Kansas	400- 6,484	3,500	20,677
Texas	100-12,786	5,000	78,018
Louisiana	200-10,932	4,000	4,387
Arkansas	600- 7,707	2,500	2,727
New Mexico	700- 7,370	3,800	1,974
Colorado	375- 7,040	2,200	192
Wyoming	800- 8,725	3,000	3,710
Montana	500- 7,264	1,400	1,666
California	100-15,004	3,500	12,951
			351,206

To answer your problem certain things must be assumed. First the producing oil wells must be taken into consideration and you will note from the above table that about one-third of them are located in the Appalachian region. Old shallow strippers but they still produce a lot of oil. The Texas wells are next in number and range in depth from comparatively shallow producers to some wells producing from below 8,000 feet. The largest number of wells in that state are in the East Texas field which has more than 25,000 producers and the average depth of wells there is 3,650 feet. So the few deep producers along the Gulf Coast are offset by the greater number of relatively shallow wells in East Texas, West Texas, Panhandle and in North Central Texas.

In Oklahoma and Kansas shallow wells still produce about one-third of the oil. For instance, in Oklahoma the June allowable totals 405,000 bbls. per day of which 270,298 bbls. comes from prorated areas while 134,702 bbls. comes from shallow strippers. Of the 270,298 bbls. Oklahoma City is allowed 76,100 bbls. from a depth of 6,500 feet but the other areas in the state with but few exceptions are less than 5,000 feet, with the strippers ranging from 400 to 2,000 feet.

In Kansas there were 18,317 producers as of May 1 of which 13,921 were unprorated or of the stripper and shallow type. The other 5,000 will average around 3,750 feet in depth so the 3,500-foot average depth figure given in the table may be a little high.

The fact that deep wells make the head lines has led to an erroneous assumption that the oil is coming from great depths but if it was the industry could not sell it for the present average price of about $1.17 per barrel. Deep wells cost too much to drill to pay out within five years at the present prorated rates of production so they are not as numerous as old shallow wells.

For the future it seems certain that the industry must secure its oil from fields of less than 5,000 feet depth to be yet found by exploratory methods of prospecting because a large part of all the oil so far produced has come from wells of less than 4,000 feet depth. There is no reason to assume that all relatively shallow fields have been found but it is true that most of them have been discovered that can be located by geological methods and by chance that has been applied to oil prospecting up to date.

Radiation of Heat From Tanks

We are planning to install a steel tank for use in treating emulsified oil by heating and chemicals. Can you furnish a formula by which it will be possible to estimate the radiation losses from tanks of different diameter used for this purpose?—A. L. O.

Radiation will vary with tank diameter and rate of filling, and difference in inside and outside temperatures. Heating of the oil varies with the quantity only. It therefore follows that the heat required for the oil will be the same in any size tank for a given volume of oil but the radiation is a variable and can be calculated from the following formula.

T = Inside temperature of tank.
t = Temperature outside of tank.
A^1 = Area of a unit section of one type tank.
A^2 = Area of unit section of another type tank.
U = BTU radiated at given temperature difference.
$A^1 - A^2$ = Difference in area of radiation between tanks.
C = Specific heat of oil or .5 deg.
W^1 = 7 pounds weight of oil per gallon.
W^2 = Weight of oil per barrel or 294 pounds.
f^1 = 2.7 BTU unit radiation bare pipe.
f^2 = 2.35 BTU radiation of curved surface.
$(A^1 - A^2) \times f^2 \times (T - t)$ = Radiation difference.

The heat input through the coils will be a variable as well as the radiation through large and small coils. The volume of oil will fill the tanks to different levels depending upon diameter and this will have some effect upon the efficiency of heat transmission through the oil. The oil level will also effect the radiating surface of the tanks used and it will be necessary to consider the radiation of heat per unit height or depth of oil entering tank.

These data are intended primarily to assist in determining the relative merits of tanks of different heights and diameters for treating emulsions, taking into account heat losses only.

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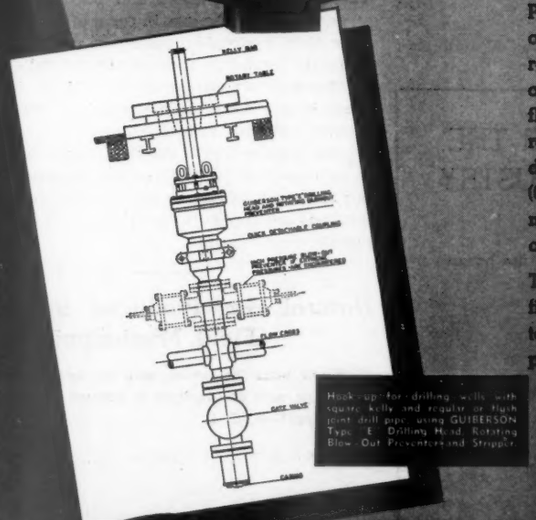

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QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Articles on Hydrogenation In The Oil and Gas Journal

Will you kindly supply a list of the articles on the hydrogenation process as applied to petroleum that have appeared in The Oil and Gas Journal?—M. C. E.

Berthelot was the first, in 1869, to obtain liquids from coal by the process of hydrogenation, then the method attracted attention during the early part of the World War. Shortly after the war a study of the Bergius plants of Germany resulted in considerable activity in England and in 1928 the Standard Oil Co. of New Jersey erected a small hydrogenation plant for the treatment of petroleum oils at Baton Rouge, Louisiana. This activity caused many articles to appear within the next three years. There are no hydrogenation plants operating on a commercial scale in the United States except those of the Standard Oil Co.

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Meaning of Germ Processed Oil

Will you give me the meaning of "Germ Processed Oil"? Is this an oil that is specially processed?—M. G. H.

Germ processed oils represent a special class of high grade lubricants produced by a well known oil company. The term is copyrighted to cover a group of lubricants for which are claimed higher oiliness than mineral oils, reduction of the frictional drag between rubbing surfaces, increased load carrying capacity and increased stability. These qualities are obtained by carefully selecting the base lubricating stocks, which pass through special manufacturing processes, and by the use of additives, the first of which was oleic acid and derivatives. This was probably the original use of an additive in lubricating oils, about 1920. Since then other substances have been utilized, methyl dichlorostearate being introduced about 1934.

The term "germ process" originated with Wells and Southcombe, who demonstrated that the animal and vegetable oils had lower coefficients of friction under heavy pressures than the pure mineral oils. They found that while the addition of 5 per cent tallow to a mineral oil reduced its coefficient of friction 50 per cent, the same result could be obtained by adding 0.5 per cent of oleic acid. The premise is supported by the adsorption theory, as animal and vegetable fatty acids are chemically more active than their esters and more readily adsorbed.

References: Wells and Southcombe, Jr., Soc. Chem. Ind., 51, 1920. Archbutt, ibid., 56. L. L. Davis, Bert H. Lincoln and B. E. Sibley, Improved Lubricants and Lubrication, Parts 1 and 2, The Oil and Gas Journal, p. 31, Nov. 21, 1935. Bert H. Lincoln, Gordon D. Byrkit and Waldo L. Steiner, Chlorine Compounds Added to Lubricants, Ind. Eng. Chem., 28, No. 10, 1191-97, 1936

Analysis of Centralia, Illinois, Crude

We would appreciate it very much if you would furnish us with an analysis of the crude oil produced in the Centralia pool of Illinois, including the octane value of the straightrun gasoline.—A. P. O.

ANALYSIS OF CENTRALIA CRUDE OIL

Pool	New Centralia
Well location	Section 1-1n-1w
Producing horizon	Benoist sand
Depth of well	1,340 feet
Gravity, A.P.I.	38.4
Viscosity at 100° F.	41.7
Open cup flash, °F.	Below 60
Pourpoint, °F	—50
Sulfur by bomb, per cent	0.21
Gasoline (below 392°), per cent	33.7
Gravity, A.P.I.	62.3
Octane number	53
Sulfur, per cent	0.02
Heavy naphtha (between 392-428° F.)	4.2
Gravity, A.P.I.	45.0
Kerosene (between 428-518° F.), per cent	10.5
Gravity, A.P.I.	41.0
Sulfur, per cent	0.02
Bottoms, per cent	51.0
Gravity, A.P.I.	23.9
Viscosity at 100° F.	383
Pourpoint, °F.	+15
Sulfur, per cent	0.34
Carbon residue	5.57

The analysis indicates that this oil will give exceptional yields on cracking, about 70 per cent of high-grade gasoline should be obtained.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Isobutyl Chloride

Use—Reducing explosion and fire hazards in special preparations.

Form—Colorless liquid.

Formula—$(CH_3)_2$ CH CH_2 Cl.

Molecular weight—92.5.

Specific gravity—0.8836.

Solubility—Very slightly in water, easily in organic solvents.

Boiling point—156° F.

Melting point— —204° F.

LIMITATIONS

Specific gravity	0.88
Boiling point, max. °F.	160

Note—Isobutyl chloride in vapor form, tends to inhibit the explosion of air-hydrocarbon mixtures. When 1.75 per cent is present in a 10 per cent methane-air mixture, no explosion takes place when sparked.

Outline of Refining Method For Producing White Oil

I wish you would give me some information regarding the manufacture of white oil. Are the oils from certain base oils better than others? I also desire to know how much acid is required and what kind of filtering is applied.—L. A. D.

White oil is a pure neutral mineral oil free from taste, color and odor. This oil is manufactured especially for pharmaceutical use, but large quantities are consumed in the preparation of cosmetics; some is utilized as a lubricating oil, and it also finds a place in dietetics.

The first step in the manufacture of white oil is to separate all the wax from the selected stock. This separation may be accomplished by a combination of chilling, then passing through a filter press, and solvent refining by the use of various solvents at low temperatures. Liquid sulfur dioxide is well adapted to white oil refining.

When a solvent is used the next step is distillation for the removal and recovery of the solvent. The dewaxed oil is next treated with sulfuric acid, applied at first in small quantities of the 66° acid, contacting for an hour or more, then followed with a long period of settling. After the sludge has settled, it is drawn off. Next, oleum is added and agitated for a long period and followed by very gradual settling. This operation may be repeated several times. The quantity of acid in some cases totals 60 to 80 pounds per barrel of oil.

The filtering through fuller's earth, or specially prepared contact earth, follows the acid treating. The clear oil is washed and purified in several steps, involving the use, in turn, of weak solutions of sodium hydroxide, ammonia and alcohol. Finally, the product is filtered through fuller's earth.

There are several grades of white oil. The finest grade is that known as medicinal oil, obtainable in several different viscosities.

The heavier oils of the naphthenic type appear to be especially well suited for making white oil, but any stock will serve provided suitable refining methods are applied to produce an oil meeting the market requirements.

Natural Gas Produced in Jackson Field, Mississippi

If you have the record, will you be good enough to supply us with the analysis of natural gas produced in Mississippi?—F. O. E.

ANALYSIS OF JACKSON, MISSISSIPPI, GAS

	Volume per cent
Carbon dioxide	0.33
Oxygen	0.22
Methane	91.51
Nitrogen	7.94
Total	100.00
Specific gravity	0.584
Heating value, B.t.u./cu. ft.	939

The Jackson gas field, the only natural gas producing field in Mississippi, is located in and around Jackson.

FIELD OPERATIONS

Summarizing the Week's Developments

TEXAS—A 15,000-bbl. well in Ector County was the prize completion of the week in the United States. Two new producing areas are in sight in Andrews County, and several pools loom in Central Texas counties, of which Throckmorton appears to have two, and Eastland, Stephens and Callahan counties, one each. An important wildcat in Shackelford County was dry and abandoned. A number of outpost wells near the K.M.A. field in North Texas are giving indications of production and a new pay level in the Panther pool in Archer County was uncovered but no gauge was taken. Two producing areas in Young County were found, one of the discovery wells showing a 400-bbl. potential, the other flowing over the derrick and then put under control. In the Gulf Coast area oil was discovered in the Bammel gas field, Houston County, and a deep pay was opened in the Cleveland field, Liberty County. The Fairbanks pool in Harris County was partly defined. The Laredo district was given its third Pettus sand pool by a 100-bbl. well in Duval County.

TEX-LA-ARK—Pool extensions and deep sand discoveries featured Louisiana-Arkansas news of the week, but the East Texas border was uneventful.

WYOMING—Carbon County has a new gas field, the discovery well starting at 27,000,000 feet per day from Sundance sand.

CALIFORNIA—A new pool was opened in the Guijarral Hills section of Fresno County by Petroleum Securities Co., the discovery well flowing at the rate of 3,000 bbls. per day from the Avenal zone of Eocene age. The D. & B. Oil Co. opened the Lomita pool in Los Angeles Basin south of the eastern tip of the Torrance field. The well started at about 710 bbls. per day.

OKLAHOMA—Seventeen oil wells were completed in the state, most of them in the Greater Seminole area. Production in the state was cut down to 408,450 bbls. per day bringing it close to the state allowable.

KANSAS—A new pool is in the making in section 31-32-2e, Cowley County. An 1,863-bbl. well in section 29-14-13w, Hall pool, Russell County, and a 1,029-bbl. well, an outpost west of the Trapp field in Russell County, were features. A wildcat in Finney County, drilled in section 27-21-34w, produced 600 bbls. the first day after a double dose of acid. It produces from Mississippi lime.

ILLINOIS—Thirty-five oil wells and 10 dry holes were completed in Illinois and 48 new operations started. Cass and Gallatin counties were the latest to join the areas in which wildcatting is being done. The new oil wells averaged 339 bbls. per day per well initially.

KENTUCKY—The Birk City pool in Henderson County, western Kentucky, continues to bring in good wells from McClosky lime, the largest of the past week starting at 1,440 bbls. per day, while three other completions were good for about 700 bbls., 500 bbls. and 300 bbls. respectively, on latest report. Western Kentucky crude was cut 10 cents per barrel to $1.30 outside of Birk City, where one company cut the price to $1.25 per barrel.

Completions in All Fields

(Week Ending June 25, 1938)

	Oil	Gas	Dry	Total	1938 total comp. to date	1937 total comp. to date
N. Y., Pa. and W. Va.	44	12	5	61	1,936	2,037
Ohio	7	5	12	24	453	514
Indiana	0	0	0	0	42	42
Kentucky	11	1	9	21	391	256
Illinois	35	0	10	45	520	32
Michigan	14	0	13	27	391	407
Kansas	12	1	8	21	841	1,175
Oklahoma	17	5	10	32	859	1,401
Texas:						
North Central Texas	39	1	18	58	1,537	1,404
West Texas	35	1	5	41	1,121	1,270
Texas Panhandle	8	1	0	9	304	333
East Texas	38	0	2	40	1,075	1,039
East Central Texas	4	1	3	8	173	340
East Texas Border	1	0	0	1	81	201
Gulf Coast Texas	24	1	3	28	622	725
Southwest Texas	32	1	3	36	1,036	1,588
Total Texas	181	6	34	221	5,949	6,900
North Louisiana	9	3	16	28	307	320
Gulf Coast Louisiana	11	0	2	13	235	229
Total Louisiana	20	3	18	41	542	549
Arkansas	3	0	0	3	123	60
Montana	0	0	0	0	39	82
Wyoming	0	1	0	1	78	45
Colorado	0	0	0	0	5	6
New Mexico	8	0	2	10	278	376
Utah	0	0	0	0	0	0
California	17	0	5	22	643	729
Total United States	369	34	126	529	13,090	14,611
Total previous week	364	53	80	497		
Difference	5	19	46	32		

Outstanding Fields--Highlights

(Week Ending June 25, 1938)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	25	133	19	15,504	538	13,448
Hastings	3	6	4	565	549	18,897
West Saxet	1	4	0	0	27	2,517
Saxet	1	8	0	0	603	29,210
Benavides	4	8	4	430	207	10,187
East Texas	36	112	28	1,519	25,297	363,849
Talco	2	4	1	297	640	24,000
Ector County	17	68	15	17,565	1,122	34,149
Winkler County	9	13	7	5,453	1,656	35,300
OKLAHOMA						
Dora	2	6	0	0	71	4,225
Oklahoma City	3	10	1	1,040	1,085	95,225
KANSAS						
Barton County	3	18	2	1,776	324	9,218
Stafford County	4	20	1	1,778	139	2,885
Rice County	2	16	1	2,665	1,172	27,120
Russell County	4	22	4	4,777	1,092	26,117
NEW MEXICO						
Lea County	11	89	6	6,356	1,763	84,450
LA-ARK-TEX						
Rodessa, Tex-La-Ark	4	15	2	1,150	999	74,690
Jennings, La.	4	9	3	1,508	111	19,567
Cotton Valley (deep)	4	19	3	2,235	68	11,630
Lisbon, La.	3	14	4	1,890	233	9,025
Schuler, Ark.	1	17	1	1	410	12,660
MICHIGAN						
Buckeye	1	20	4	436	413	21,976
ILLINOIS						
Central Illinois	35	188	35	11,848	644	35,251
CALIFORNIA						
Wilmington	8	29	4	6,005	497	95,250

Eastern Field Report

By STAFF CORRESPONDENT

Rotary Tests in Pennsylvania Are First to Lower Devonian

PITTSBURGH, Pa., June 27.—One of the two rotary tests drilling in the lower Eastern fields which has reached the Onondaga has created additional interest in this type of drilling as this formation contains considerable chert, forming in many locations a very hard mass. In West Deer Township, Allegheny County, South Penn Oil Co. and others topped the Tully lime at 5,960 feet on the Fred Backhaus farm on the Kellersburg anticline. The sample contained lime for a greater distance than expected. At approximately 6,360 feet, top of the Onondaga was struck and drilling slowed. There was no evidence of gas pockets in the Marcellus shale. Drilling is being continued to the Oriskany sand.

The other rotary test being drilled by Peoples Natural Gas Co. on the John S. Marshall farm on the Grapeville anticline in Penn Township, Westmoreland County, has reached 7,400 feet and is drilling in a black shale, presumed to be the Marcellus, with very little evidence of any Tully lime above. Both tests are of extreme importance being the first tests to the lower Devonian on these structures.

Completions improved and totaled 34, of which 11 were dry holes, 13 gas wells, and 10 producers with an initial production of 175 bbls. a day, most of which was in Southeast Ohio.

SOUTHEAST OHIO

The best completion in Southeast Ohio was the second test of Knox Exploration Co. and others on the William E. Durbin farm, northeast quarter section 4, Union Township, which was drilled in the Clinton sand at 2,820 feet and produced 90 bbls. the first day after shot.

In the southwest quarter section 3, same township, P. E. Perkins drilled on the Arthur G. McMillan farm through the Clinton sand to 2,935 feet. There was only a showing of gas and the test was plugged.

In Jackson Township, Knox County, southeast quarter section 10, Kundtz-Hulse, Inc., completed No. 4 Lovey A. Stone in the Clinton sand at 3,180 feet estimated good for 25 bbls. a day after shot.

In Athens County, Kachelmacher Estate drilled on the New York Coal Co., northwest quarter section 28, Dover Township, through the Berea sand to 1,097 feet and it was dry.

In Licking County, Wehrle Co. drilled on the Morrison Heirs farm, northeast quarter of section 22, Franklin Township, through the Clinton sand to 2,910 feet and it also was dry.

In Monroe County, T. E. Drum completed No. 3 Kate Baker, northwest quarter section 16, Franklin Township, in the lime at 1,305 feet, good for a half barrel pumper after shot. At Rinards Mill in section 5, Washington Township, H. B. Walker & Co. drilled on the Alonzo Hill farm through the Berea grit to 1,291 feet and it was dry.

In Morgan County, H. H. Schwartz, Jr., trustee, completed No. 8 A. A. Bolleau at Joy in section 2, Homer Township, in the First Cow Run sand at 69 feet good for a half barrel a day. This operator also drilled No. 9, same farm, through the Cambridge lime to 67½ feet and it was dry. On another lease of this farm, D. T. Orndoff drilled No. 41 in the Macksburg 500-Foot sand to 555 feet, gauging 125,000 feet a day.

In Noble County, Wilbur Keith completed a fair well on the L. A. Wickens farm, northeast quarter section 14, Jackson Township, which produced 19 bbls. the first day from the 800-Foot sand and, deepened, had a showing of oil in the Maxton sand with considerable gas. It was not shot.

In Washington County, Hope Natural Gas Co. completed a test on the John H. Greenlees farm, 1½ miles north of Fleming, in section 5, Barlow Township, in the Injun sand at 1,459 feet, gauging 100,000 feet a day. In Palmer Township, Lot 1,077, 1 mile south of Wolf Creek, Lester Swingle and others completed No. 8 J. D. Murdock through the Macksburg 500-Foot sand without a showing. In Warren Township, 2 miles northeast of Fleming, section 17, Ross and others drilled No. 18 James H. Cooper through the Cow Run sand to 965 feet and it was dry.

In Trumbull County, west of the crossroads at Mecca in Mecca Township, Norwood P. Johnston and others have not recovered the collapsed casing on the G. M. Porter farm.

SOUTHWEST PENNSYLVANIA

Several wells were completed in Southwest Pennsylvania. In Amwell Township, Washington County, Harry Williams and others completed No. 2 Jason Buchanan at 1,031 feet, good for 4 bbls. a day.

In South Strabane Township, Carnegie Natural Gas Co. completed deepening No. 1 C. M. Guthrie at 3,013 feet.

In Greene County, Carnegie Natural Gas Co. deepened No. 1 Sadie A. Connor in Washington Township to 2,741 feet.

In Franklin Township, Greene County, Equitable Gas Co. deepened No. 1 Jess Lapping through the Bayard sand to 3,327 feet, gauging 68,000 feet a day.

In Washington Township, Greene County, this company has a location on the John Huffman farm. In Jackson Township, it is deepening the C. S. Orndoff at 3,125 feet; in Center Township, deepening the C. J. Conklin at 3,320 feet; on the S. G. Durr farm, Greene Township, deepening at 2,379 feet.

In Center Township, Greene County, Union Gasoline & Oil Corp. has reached top of the Nineveh Thirty-foot sand in No. 4 Braddock & Cook. Charles L. Mong is down 210 feet starting No. 3 Jesse L. Metz. J. B. Orndoff is still in trouble with No. 2 G. M. Scott trying to drill past the tools.

In Richhill Township, Greene County, Penn Ohio Oil & Gas Co. is building rig on the H. W. Ealy (Conklin) farm. Furman Nuss and others shut down No. 2 Charles Swart, same township, at 1,050 feet for engine repairs. In Aleppo Township, J. G. Cochran cemented at 1,700 feet and shut down No. 4 John Strope.

Washington County

In Amwell Township, Washington County, F. K. Fawcett and others deepening No. 1 L. Bronder reached the Fifth sand and had a showing of oil which rose 1,000 feet in the hole. Subsequently it made a flow which ignited, destroying the rig which will have to be rebuilt.

In this township, Union Gasoline & Oil Corp. has reached 2,050 feet in No. 2 Leroy Vankirk. In North Strabane Township, Penn Ohio Oil & Gas Co. is drilling the W. E. Davis test at 715 feet. In this township, Beedle & Beboneare are deepening the test on the John Arblaster farm and have reached 2,315 feet.

Deep Tests

On Chestnut Ridge in Wharton Township, Fayette County, Greensboro Gas Co. is drilling at 6,935 feet on the J. R. Thompson farm with an unusually thick Tully lime section. This has now been passed and the samples are showing dark shale.

In North Union Township on this structure, Wasson & Co. have reached 2,950 feet on the J. H. Sorg farm. In Springhill Township, L. J. Houze Convex Glass Co. is drilling at 4,890 feet on the Paul Dunham farm.

In Beaver County, John T. Galey and others are drilling at 920 feet on the Eliza Allen heirs in South Beaver Township.

WEST VIRGINIA

Several producers were completed in West Virginia.

In Clay County, Virginia Gasoline & Oil Corp. completed the Brown, Swan, Goshorn & Geary test in Henry district in the Injun sand at 1,927 feet, good for 15 bbls. a day.

In Gilmer County, Oren R. Bush completed the test on the Anna Belle King farm in Glenville district in the Injun sand at 1,643 feet showing 10 bbls. a day along with 300,000 feet of gas. Here E. J. Bush and others drilled on the Jennie H. Powell farm through the Injun sand into the slate, good for 5 bbls. a day.

In Pleasants County, Doty Oil & Gas Co. completed No. 1 G. M. Doty in Union district at 824 feet, the Cow Run sand, showing for 5 bbls.

Gas Wells

In Cabell County, Templeton Gas Co. completed the test on the Ottie Browning farm in McComas district at 3,714 feet, gauging 268,000 feet a day.

In this district, Lower Toms Creek Gas Co. completed the Martha A. Christian test at 2,320 feet, with 104,000 feet of gas. Hatfield Gas Co. drilled on the Leslie Hatfield farm through the Shale to 3,529 feet and it was dry.

In Calhoun County, Hope Natural Gas Co. deepened No. 1 Pierce Lough, Center district, in the Injun sand to 2,000 feet and it is gauging 100,000 feet a day. It was a former Maxton sand gas well. In Sheridan district, Chemical Oil & Gas Co. completed No. 7 D. M. Miller through the Berea sand to 2,700 feet. It has 75,000 feet in the Salt sand.

In Gilmer County, Massey and Jarvis Drilling Co. completed the second test on the J. S. Withers heirs farm in Glenville district in the Maxton sand at 1,281 feet, gauging 154,000 feet. In Center district, the test of H. B. Scott and others on the Worthey Moore farm was drilled in the slate to 2,414 feet and dry.

In Logan County, Southeastern Gas Co. completed the second test on the Covey heirs farm in Logan district as a gas well as 2,856 feet.

In Mingo County, Huntington Oklahoma Gas Co. completed No. 2 Boy Brewer in Kermit district at 3,920 feet with 149,200 feet of gas 12 hours after shot from the Maxton, Big lime and Brown shale.

In Pleasants County, W. C. Patterson Oil Co. completed No. 3 W. C. Patterson in Washington district in the gas sand at 1,404 feet and it is showing 200,000 feet and 1 bbl. of oil from the Maxton sand.

In Wetzel County, Har Lee Oil Co. deepened the Stephen Midcap test in Green district to 2,205 feet, the Big Injun sand, which was dry. It was a former producer from the Salt sand which may not be produced.

In Wood County, Lowther & Shuman drilled on the Minerva Hendershot farm in Union district through the Berea sand to 2,269 feet and it was dry.

Oriskany Gas Field

No completions were recorded in the Oriskany gas pools in Kanawha County but several locations were announced. In Elk district, Valley Gas Co. will drill No. 4 G. W. H. Glass, elevation 901.75 feet. In Poca district, Columbian Carbon Co. has a location for W. H. O'Dell and Minnie Facemeyer test, elevation 980 feet.

In Poca district, Mullins Gas Co. will drill on the Earl K. Johnston farm. United Fuel Gas Co. has a location on the W. H. O'Dell and others farm, elevation 895.2 feet.

In Elk district, Columbian Carbon Co. topped the Corniferous lime at 4,867 feet on the B. F. Jones farm and is drilling at 1,580 feet, C. W. Vickers; with a rig standing on the W. B. Fogarty farm. In Malden district, North Eight Producing Co. is down 4,842 feet in the L. E. and R. Belcher test.

In Poca district, United Carbon Co. is at 1,555 feet

(Continued on Page 91)

Southwest Texas District

By F. L. SINGLETON

Third Pettus Sand Field in Laredo Area, Duval County

CORPUS CHRISTI, Tex., June 27.—The Laredo area of Southwest Texas was given its third Pettus sand field by the completion of Rowan & Hope (Arkansas Fuel Oil Co.) No. 1 Cuellar Brothers in Duval County which flowed 78 bbls. of 43.4-gravity oil, plus 10 per cent salt water, in 20 hours through a three-eighths inch choke. The well has been in process of completion for two weeks and was finished flowing through perforated casing at 5,109-17 feet. Tubing pressure was 150 pounds and casing pressure was 670 pounds shut in.

The discovery well about 5 miles southwest of the town of San Diego, in section 96, and is on the same trend as the Benavides and Fitzsimmons fields, which are producing from the same formation. The showing of salt water indicates that the test is on the edge of the structure and several locations are expected to be made within the next week, as protection acreage is held by various companies.

In the Fitzsimmons field, about 15 miles due north of the above well, H. J. Porter completed No. 2 Fitzsimmons, the second producer in the pool. Details of the completion were not received but it is reported that the initial flow was larger than in the discovery well. Completion was made in the discovery horizon at 4,290-4,300 feet. The well offsets the discovery well and has opened a shallower sand for the field as a drill stem test in the Government Wells sand at 3,604-13 feet, tested several hundred feet of pipe line oil.

Hiawatha Oil & Gas Co. No. 5 George Herberger, section 25, Ball Ranch Subdivision, Benavides field, Duval County, was attempting to test a deeper sand at 6,103-06 feet which is reported to have carried a showing of oil and gas. Four producers were expected to be added over the week-end Benedum-Trees, Inc., No. 16 Puig cored the Parr sand at 4,710-26 feet, and cemented casing for completion. Hiawatha Oil & Gas Co. No. 13 Parr cored the Woodley sand at 4,695-4,701 feet and the Parr sand at 4,712-25 feet, total depth. Glenn McCarthy is completing No. 3 Snyder in the Pettus sand below 5,300 feet, and Standard Oil Co. of Kansas No. 8 Walsted cemented 7-inch casing on bottom at 3,908 feet.

South Alice Further Defined

The northern limit of the South Alice field, Jim Wells County, was further defined with the abandonment of Conroe Drilling Co. No. 2 Reed & Lindsay, which was bottomed at 5,605 feet. The well is located 2,080 feet southeast of No. 1, a distillate producer. In the field proper, H. H. Howell completed another producer and was preparing to test two others. No. 4 Lindsay & Reed flowed 180 bbls. in 24 hours through perforated casing at 5,301-10 feet, with tubing pressure 750 pounds and casing pressure 920 pounds. No. 7 Lindsay & Reed, 933 feet southwest of No. 4, cored oil sand at 5,280-5,304 feet, and casing is being cemented on bottom at 5,315 feet. No. 12 Lindsay & Reed cored sand at 5,250-70 feet and casing was cemented on bottom at 5,315 feet.

Magnolia Petroleum Co. No. 1 Valdez, 10 miles southwest of Ben Bolt, and on the same trend as the above field, in Jim Wells County, is standing with the drill stem stuck at 6,360 feet caused by an attempted blowout of the well last week. The hole is bottomed at 6,390 feet. An attempt was made to cut the drill stem, but when the cutting tool was in the hole approximately 3,100 feet, the well began to blow again and it was brought under control by pumping in heavy commercial mud. Mechanical trouble has retarded the progress of Humble Oil & Refining Co. No. 1 Tarrant, another interesting wildcat located on the same trend, due east of the South Alice field. The hole is bottomed at 6,520 feet, and the company is fishing for the stem which became stuck at 2,100 feet. Several sands showing oil and gas have been cored but drill stem tests showed unfavorable results.

Two Wildcat Failures

Two important wildcats were marked up as dry holes. Three miles northeast of the East White Point field, San Patricio County, Atlantic Refining Co. abandoned No. 1 D. F. Jones after a drill stem test through perforated casing at 5,295-99 feet, showed salt water. Location is in section 72, George H. Pauls Subdivision of the Coleman Fulton Pasture Co. lands

In the Midfield field, Harlan Grimes No. 1 D. I. Coggin was flowing 10 bbls. of fluid per hour of which 75 per cent was oil and the balance water. Casing was perforated at 5,343-45 feet, and the well is cleaning out through a one-eighth inch choke, showing 750 pounds of tubing pressure and 1,050 pounds of casing pressure.

Two miles east of Agua Dulce and northeast of the Agua Dulce field, Southern Minerals No. 1 Yakey, Richard King Farm Tract, was abandoned at 6,933 feet with no showings of oil or gas reported.

Coastline Oil Corp. No. 1 State, 2½ miles southeast of Aransas Pass, in Redfish Bay, tested salt water for the second time and the company is waiting on cement to set before making another test. The hole is bottomed at 8,664 feet and the two drill stem tests were made below 8,500 feet.

New Serpentine Field

Another shallow Serpentine field was opened along the Balcones Fault line, with the completion of Fred Shields No. 1 Walker, which pumped 74 bbls. on a 24-hour potential test. The well is north of Lytton Springs in the P. Martinez Survey, Block 12, Caldwell County. Serpentine was topped at 1,230 feet, and cored to a total depth of 1,335 feet. The field has been named Walnut Creek by the South Texas Geological Society.

Bank Miller Oil Co. No. 1 Martindale, Hector McNeil Survey, is coring in shale and lime below 3,223 feet. The Austin chalk was topped at 1,205 feet with the base at 1,365 feet. The Buda lime was topped at 1,378 feet, the Delo Rio at 1,420 feet, and the Glen Rose lime at 1,950 feet.

Red Bank Oil Co. No. 1 Coffield, Burleson County, pumped 200 bbls. of fluid during the last 18 hours when the well was put back on production after changing pumping equipment. The well was making 50 per cent salt water when the test was started, but decreased to 5 per cent at the end of the 18 hours, at which time the fluid was apparently pumped off The tubing and rods are being pulled to clean out the hole which is bottomed in the Edwards lime at 6,173 feet.

Shallow Gas Field Indicated

A shallow gas field for Webb County was indicated by the showing of W. F House No 1 Garcia-Villareal, Survey 720 Sand with an odor of gas was cored at 1,993-98 feet, and sand with an oil odor at 2,007-18 feet. A three-minute drill stem test at 1,969-2,014 feet through a three-eighths inch choke tested 420 pounds of working pressure. The hole will probably be carried deeper before completion is made.

Humble Oil & Gas Co. No. 1 Kelsey-Bass, Jim Hogg County, continues to attract attention as additional showings of oil and gas are cored. Tight sand with an oil show was cored at 6,584-90 feet, sandy shale with an oil odor at 6,590-98 feet, and soft shale and shells with no showing at 6,598-6,618 feet. The well is drilling ahead and is reported to be showing lots of gas in the ditch, and 11-pound drilling mud is being used to prevent any attempted blowout. The wildcat is located on a geophysical prospect of several thousand acres in the San Rafel grant.

In the La Reforma area, Starr County, Wheelock & Collins No. 1-A Francisco Guerra, Share 20, Santa Cruiz grant, is bottomed at 6,590 feet and casing is being cemented for completion. This is the third deep test drilled in the area and all have logged showings of oil and gas.

Five and one-half miles northeast of Seadrift, Calhoun County, Hiawatha Oil & Gas Co. let contract for a projected 12,000-foot wildcat to be drilled on the J. J. Roemer lease. The company controls a block of approximately 19,000 acres in the area which centers around the J. J. Ogsberry Survey. This is the second test drilled by the company, as a dry hole located a half mile southwest of No. 2 Roemer was drilled last year.

COMPLETED WELLS

Completed wells in proven fields of Southwest Texas with total depth and initial 24-hour gauge of producing wells:

Aransas-San Patricio Counties

McCampbell field: Tom Graham No. 3 Edwards, perforated casing 7,008-7,104 feet, 125 bbls., three-sixteenths inch choke.

Caldwell County

Branyon field: Taylor Refining Co. No. 3 Clark, 2,330 feet, 40 bbls. pumping.

Duval County

Benavides field: Arkansas Fuel Oil Co. No. 10 Rossi, 4,790 feet, 70 bbls., quarter-inch choke. Benedum & Trees No. 15 Puig, perforated casing 4,730-40 feet, 120 bbls., quarter-inch choke. Hiawatha Oil & Gas Co. No. 12 Parr, 4,758 feet, 138 bbls., 5/32-inch choke. Hiawatha Oil & Gas Co. No. 8 Southland Life Insurance Co., 3,930 feet, 102 bbls., 5/32-inch choke. Hoffman field: Cox and Hamon No. 1 Ruiz, 2,713 feet, 30 bbls., jetting. Magnolia Petroleum Co. No. 4 Weil, 2,817 feet, 8 bbls. per hour jetting. Lundell field: Government Wells Oil Co. No. 27 Lundell, sand 1,492-1,500 feet, 3 bbls. per hour, three-eighth inch choke. Magnolia Petroleum Co. No. 22 Duval County Ranch Co., sand 1,488-92 feet, 16 bbls. oil, 88 bbls. salt water pumping.

Guadalupe County

Darst Creek field: United North & South Development Co. No. 9-A Dix, 2,485 feet, 108 bbls.

Hidalgo County

Samfordyce field: Edward Schmitt No. 1 Flores, sand 3,014-17 feet, dry gas well.

Jim Hogg County

Colorado field: K. D. Harrison No. 1 Trevino, 3,005 feet, 205 bbls., three-quarters inch choke.

Jim Wells County

South Alice field: W. J. Coates No. 2 Lindsay & Reed, perforated casing 5,254-65½ feet, 9 bbls. per hour, one-eighth inch choke. H. H. Howell No. 5 Lindsay & Reed, perforated casing 5,262-88 feet, 170 bbls., one-eighth inch choke.

McMullen County

South Calliham field: Bill Howard No. 11 Claunch, 1,495 feet, abandoned.

Milam County

Minerva-Rockdale field: Coffield and Middleton No. 1 Dympke, 1,543 feet, abandoned.

Nueces County

Flour Bluff field: Sinclair Prairie Oil Co. No. 3 State, perforated casing 6,652-62½ feet, 165 bbls., one-

(Continued on Page 102

Texas and Louisiana Gulf

By NEIL WILLIAMS

Bammel Gas Field Shows Oil; Deep Pay in Cleveland Area

HOUSTON, Tex., June 27.—The discovery of the first oil production in the Bammel gas field, north of Houston, in Harris County, and the opening of a deep sand in the Cleveland field, Liberty County, were among the outstanding developments along the Texas Coast the past week. Developments in the Coastal Louisiana sector were featured by the favorable showing of a wildcat in Vermilion Parish, and the apparent discovery of flank production in the old Lockhart field, Calcasieu Parish.

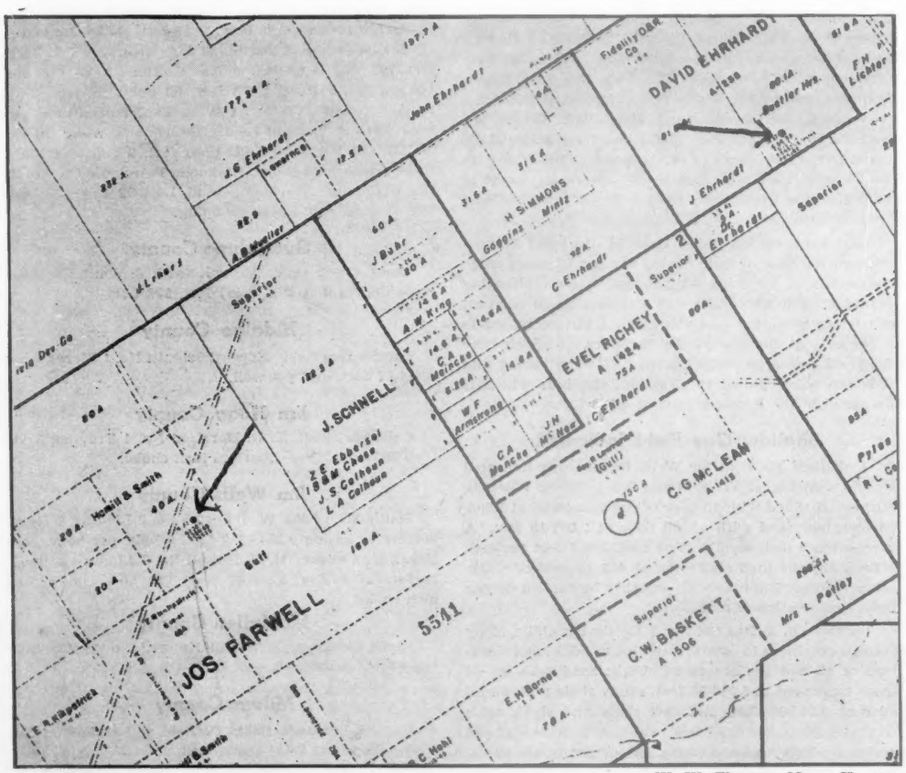
The completion of H. M. Harrell and others No. 1 Polley, which opened the first oil production in the Bammel gas field, has been marred to some extent by the presence of salt water which made its appearance shortly after the well was brought in.

The hole is bottomed in the Upper Cockfield formation at 6,286 feet, and completion was made through perforated casing at 6,257-61 feet. The well is flowing into pits, making an estimated 6 bbls. of fluid per hour of which 21 per cent is salt water, through a three-sixteenths inch choke with tubing pressure 320 pounds and casing pressure 300 pounds, shut in. Casing was cemented earlier in the week after a electrical survey showed 40 ohms resistivity and 70 millivolts porosity at 6,256-64 feet, and one ohm and 50 millivolts porosity at 6,246-82 feet. According to the following core record, the well is producing from a comparatively thin sand section that showed indications of a gas well rather than an oil well. From 6,249-59 feet, 7½ feet of shale and 2½ feet of sand showing oil and gas was recovered. From 6,259-69 feet, 2½ feet sand showing oil and gas were recovered. From 6,269-79 feet, 10 feet of sand with a faint gas odor and salty taste was logged. From 6,279-84 feet, the operators recovered 5 feet, of which 3 feet was shale with streaks of sand and the bottom 2 feet was shale.

The structure was proven for distillate production in March, 1937, with the completion of George Lawrence No. 1 Zappe, approximately 5,550 feet northwest. Based on geological markers, No. 1 Polley is approximately 60 feet lower than the discovery well and about 100 feet lower than Superior Oil Co. No. 1 Beutler, another distillate well located 5,525 feet to the northeast. No. 1 Polley was drilled on farmed-out acreage from Gulf Oil Corp. and is located in the C. G. McLean Survey.

Deeper Sand in Cleveland

Gulf Oil Corp. opened a deeper sand for the Cleveland field with the completion of No. 21-C Kirby Lumber Co., located about a half mile south of production in the John Pleasants Survey. The completion was made through perforated casing at 9,090-9,100 feet, and the well flowed approximately 48 bbls. of distillate per day with tubing pressure 2,500 pounds and casing pressure 2,650 pounds. The hole was drilled to 10,075 feet and the above test was made after a previous test at 9,137-50 feet showed 225,000 feet per day of dry gas through a quarter-inch choke. Several sands above the present perforation are reported to have been logged and it is probable that they may be tested before the well is officially completed.



W. W. Zingery, Maps, Houston

Bammel field, Harris County, showing location of H. M. Harrell and others No. 1 Polley, (indicated by circle), the first oil producer in the field and its relation to two distillate producers

The Clam Lake field, southern Jefferson County, was added to the list of known salt dome structures when Shell Petroleum Corp. No. 2 McFaddin topped the salt at 8,156 feet and cored salt to a total depth of 8,198 feet. Five-inch casing was cemented at 5,659 feet and the well will be completed in the Miocene discovery horizon. This is the second well on the structure and is located southeast of the discovery well that was completed in December, 1937.

N. W. Hunter has apparently extended the Hitchcock field, Galveston County, a short distance to the west as No. 1 Aaron Cohen is being completed. The hole is bottomed at 5,176 feet, and casing is to be perforated in the upper 10 feet of the sand section cored at 5,146-76 feet. The lower 10 feet of the sand section is reported to have shown salt water.

In the Fairbanks field, Harris County, Union Producing Co. was preparing to test No. 1 Goodykoontz, an outpost about a mile northeast of production. Information pertaining to the core record of the well is not available at this time and it is not known where the first test will be made. The hole is bottomed at 7,590 feet with 5¾-inch casing, cemented below 7,500 feet. Only a slight showing was reported in the discovery horizon at 6,800 feet, and it is reported that a showing was cored below 7,500 feet.

Fairbanks Partly Defined

The showing of salt water in three of the eight completions reported for the Fairbanks field, Harris County, last week is expected to result in a decline in operation on the west side of the field, where Amerada Petroleum Corp. and Stanolind Oil & Gas Co. defined production with the completion of three small wells, all of which showed large quantities of salt water. The wells are on the A. Sebek, C. W. Hahl and Niteland Investment Co. leases in the W. K. Hamblen and J. M. Dement surveys.

On the east side of the Eureka field, Harris County, Jack Frazier is having trouble completing No. 3 Hogg due to salt water which made its appearance after the well flowed at the rate of 25 bbls. of oil per hour. The original perforations were made at 7,725-35 feet, and the well is being recompleted after the perforations were squeezed off with cement. Oil sand was reported to have been cored from 7,725-57 feet. Means & McGehee No. 1-A Lackner topped the sand at 7,685 feet and is bottomed at 7,727 feet with 5½-inch casing cemented at 7,725 feet. The well is a northwesterly offset to the operators' No. 3 Lackner in the H. Reinerman Survey.

Prospects of opening production on the West Branch Prospect in Jackson County were not bright as Magnolia Petroleum Co. continues testing No. 2-A West. Two drill stem tests through perforated casing at 5,630-33 feet and at 5,626-29 feet showed nothing but salt water, while a third test at 5,088-91 feet showed salt water and 500 pounds of working pressure. The well is located in the R. Musquez Survey, about a half mile northeast of No. 1 West, a dry hole.

Wildcats

Locations for two wildcats were made in Montgomery County. Northeast of New Caney in the Pryor Bryan Survey, Block 19, Deep South Petroleum Corp. staked location for No. 1 Foster Lumber Co. while southeast of the Conroe field E. R. Kirkpatrick has derrick up for No. 1 Foster Lumber Co. The well is in T.&N.O. Survey No. 7 and is scheduled to be drilled to the Conroe sand.

West of the Hardin field, Liberty County, Texas Co. made location for No. 1 D. D. Paige in the James Hanney Survey which is scheduled to be drilled to 8,000 feet. Another location which has attracted much at-

(Continued on Page 96)

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Among Gulf Coast Drilling Contractors

Al Buchanan Drilling Co. of San Antonio is moving one of its rotaries from the East White Point field in San Patricio County to Calhoun County, Texas, where he is scheduled to spud a projected 12,000-foot wildcat for the Hiawatha Oil & Gas Co. The test is located about 5½ miles northeast of Seadrift in the J. Ogsberry Survey on the J. J. Roemer lease. It is about a half mile northeast of a dry hole, which was abandoned last year due to heaving shale.

Rowan & Hope opened the third Pettus sand field in the Laredo district with the completion of their joint test with the Arkansas Fuel Oil Co. The well is located about 5 miles southwest of San Diego and was drilled on the Cuellar Brothers lease. Production was obtained by perforating the casing at 5,109-17 feet, and the well flowed 78 bbls. of oil plus 10 per cent salt water in 20 hours through a three-eighths-inch choke. Protection acreage is held by various companies and additional locations are expected to be made in the near future. In the La Reforma area, Starr County, casing is being cemented for a production test at Wheelock & Collins No. 1-A Francisco Guerra, which is bottomed at 6,590 feet.

Trinity Drillers of San Antonio continue testing Coastline Oil Corp. No. 1 State, located 2½ miles southeast of Aransas Pass, in Redfish Bay. The hole is bottomed at 8,654 feet and two drill-stem tests below 8,500 feet have shown salt water. One well is being completed in the Driscoll field, Duval County, for Continental Oil Co., while three other operations are reported for Phillips Petroleum Co. and Standard Oil Co. of Texas in the Midway, Alta Mesa and West Saxet fields.

N. W. Hunter is preparing to test No. 1 Aarco, located in the Hitchcock field, Galveston County. Sand was cored at 5,146-76 feet, the total depth, and completion will be made through perforated casing in the top 10 feet, as the lower portion of the section carried salt water. This well is being drilled for himself and if productive it will extend the field a short distance to the west.

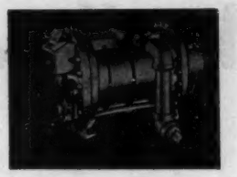
George Echols is preparing to spud No. 1 Balzen, a wildcat located in the I.&G.N. Survey, Jim Wells County. Three other operations are reported for himself in the Heyser field in Calhoun County and in the Hardin field in Liberty County.

Payne Drilling Co. is moving in a rotary to the Ogburn Prospect, Harris County, where he will start drilling operations for O. W. Killam No. 1 M. A. Dodd.

New locations reported for the Texas Coast showed a decline for the second consecutive week as only 20 new operations were made. Four of the locations were wildcats, one of which can be classified as a semi-wildcat, located about a mile southwest of the Manvel field, Brazoria County, while the others are located in Montgomery and Liberty counties. In Montgomery County, Deep South Development Corp. is scheduled to start drilling operations on No. 1 Foster Lumber Co., a deep test, about 6 miles northeast of New Caney in the Pryor Bryan Survey. Southeast

(Continued on Page 114)

In the K.M.A. field this group was snapped by an Oil and Gas Journal photographer. They are V. Boles, rotary tool pusher, and Howard Smith, cable tool pusher for Manning & Martin Drilling Co.; Vic E. Baumm, production superintendent, and Ed Dezell, production foreman, Ryan Consolidated Petroleum Corp.



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North and East Texas

By MITCHELL TUCKER

K.M.A. Extended; New Pay in Panther; Young County Pools

WICHITA FALLS, Tex., June 27.—The K.M.A. pool showed an increase in extension activity last week as several outposts gave indications of production. Promising to revive the southeast portion of the pool, C. B. Christie and others No. 1 R. L. Kempner has set casing at 3,807 feet for a test of two sections showing oil from 3,844-46 feet and from 3,990-94 feet.

On the west side of the pool, Fain-McGaha Oil Corp. No. 1-B Griffin, Block 2, W. H. Spillers Survey, 1 mile southwest outpost, was flowing by heads while drilling deeper in saturated lime below 3,723 feet. Casing was set at 3,695 feet.

Two new outposts were staked on the northwest side of the pool. H. Featherston made location for No. 1 Waggoner approximately three-quarters of a mile north and slightly east of the Monty Staniforth west extensioner. About a half a mile northeast of this location Staley & Omohohundro staked No. 1-B Tom L. Burnett, in section 2, H.T.&B. Survey.

Archer County

A new pay level for the Panther pool of Archer County was indicated when Blackwell Oil & Gas and Helmerich & Payne No. 2 Wilson-McCorey, northwest offset to the discovery well, started flowing at a depth of 4,365 feet. After the well was brought under control, 5½-inch casing was set at 4,356 feet and operations were suspended until cement has set. Production is thought to be from the same horizon that showed 60 feet of saturation in the same operators' No. 2 Wilson, which may be a zone of contact with the Ellenburger.

In the eastern part of the county, Adams Oil & Gas No. 1 T. Moer, new pool opener 1 mile east of Scotland, still refuses to show any increase in production. Following a 30-quart shot from 4,135-48 feet, the well was cleaned out but failed to flow after tubing was run. It is shut in to build up pressure.

Another wildcat to log oil showings in Archer County was Phillips Petroleum Co. No. 1 J. C. Arthur, section 3, G.H.&H. Survey, 3 miles south of Dundee in the western part of the county. The test found broken showings at 5,106-16 feet, and from 5,207-21 feet. They were not regarded as sufficient to merit a production test and the wildcat is underreaming casing below 5,116 feet.

Cooke County

Sinclair Prairie Oil Co. has announced definite location for its second test in northwestern Cooke County's new deep sand area. It will be No. 1 S. H. Putnam, 1,650 feet north and a little west of the discovery well, and will be carried to the original contract depth of the first well, 7,000 feet, or into the Ellenburger.

The discovery well No. 1 J. M. Best, Thomas Toby Survey, although not yet officially gauged, made 175 bbls. of oil in one hour through open 2-inch tubing, and is estimated at 2,000 bbls. or more per day from sand topped at 4,887 feet and drilled to 4,900 feet. An additional storage tank of 500 bbls. is being erected while 3,000 bbls. of oil are in tanks at the present time. The Sinclair Prairie Pipe Line Co. last week was taking rights of way for a 4-inch line from the discovery well to a railroad station just north of Gainesville where the crude will be shipped by tankcar to Oklahoma.

Young County

Indications were given of two new producing areas in Young County. Cosden Petroleum Co. No. 1 Sewell, in the J. W. Bray Survey, about 5 miles southeast of Graham, encountered saturation in the Caddo lime at 3,950 feet. A 3,000-gallon acid treatment was given and the well responded with a flow of 170 bbls. in eight hours. The well is estimated good for from 350 to 400 bbls. daily.

C. A. Lupton and others No. 1 J. F. Knight, R. Hamilton Survey, last week topped saturated Caddo lime at 3,700 feet and the well blew in over the derrick. With 4 feet of penetration taken, operators were undecided as to whether to drill deeper or complete at the present depth. The well is about a mile and a half south of Graham.

EASTERN TEXAS FIELDS

DALLAS, Tex., June 27.—The actual potentiality of Peyton Brothers No. 1 Tarkington, seventh producer for the Flag Lake field and third for the southwestern extension area, was still uncertain as the well was flowing about 10 bbls. of oil per hour after the third production attempt. On two previous occasions the well had to be killed when it broke loose outside the casing and threatened a blowout. The well now has a much lower gas-oil ratio, indicating that the perforated casing method of completing wells will probably be most satisfactory for this high gas pressure field. The hole is bottomed at 3,072 feet with saturated sand at 3,061-71 feet. It is located between the original southwest extension well and the Richards & Tarkington well which was officially gauged last week as a 1,800,000-foot gas producer.

There are now five wells drilling in the field and several more rigging up. Most of these are extension tests or outposts which will do much to establish the true proportions of this yet undefined area.

The Texas Railroad Commission last week called a hearing for July 13 on the Flag Lake field to consider special rules and orders for casing and spacing programs.

Houston County

The Navarro Crossing pool, Houston County, received a mile southwest outpost last week when Humble Oil & Refining Co. staked location for No. 1 C. C. Hill in the J. L. Reviere Survey, Block 4. Humble Oil & Refining Co. No. 1 Dailey-Taylor, three-quarters mile southwest outpost to the field, is still testing a showing at 5,850-52 feet.

Gregg County

Humble Oil & Refining Co. and Gulf Oil Corp. No. 1 E. Robertson, Gregg County's deep gas-distillate well, continued to produce last week, but production gauges for the last three days of the week showed a decline in the distillate output from 31 bbls. to 28 bbls. to 16 bbls. It is flowing through three-quarters inch choke with a pressure of 150 pounds. Production is through perforations at 7,244-85 feet.

EAST TEXAS FIELD COMPLETIONS

(One-hour test)

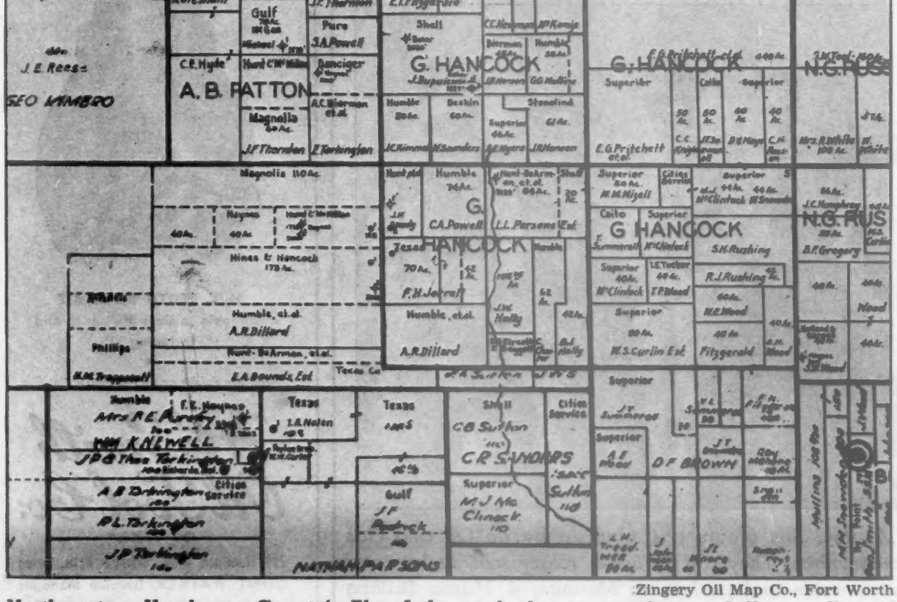
Gregg County—Longview Area

Atlantic-Stanolind No. 19 S. C. Fishburn, 3,476-3,750 feet, 114 bbls; L. S. Flannery No. 6 W. H. York, 3,550-81 feet, 125 bbls.; Gester-Silvey No. 7-B D. W. McQueen, 3,568-75 feet, 40 bbls.; Lester-Duffield No. 9 J. Moore, 3,553-53 feet, 40 bbls.; A. Spear No. 3 G. E. McGredo, 3,644-49 feet, 75 bbls.; Stanolind Oil & Gas Co. No. 16-A J. D. Davis, 3,520-69 feet, 32 bbls.; Stanolind Oil & Gas Co. No. 5 Skipper-Garner, 3,514-30 feet, 44 bbls.; Stanolind Oil & Gas No. 12-A S. G. & M. Smith, 3,548-87 feet, 54 bbls.; Washington Oil Corp. No. 9 William Cobb, 3,530-51 feet, 90 bbls.

Gregg County—Kilgore Area

B. F. Carroll No. 2 Sharpe, 3,540-57 feet, 25 bbls.; Davis-Hart No. 8-B J. S. Elder, 3,510-53 feet, 5 bbls.; Everts Drilling Co. No. 10 J. H. Laird, 3,546-90 feet, 60 bbls.; Gulf Oil Corp. No. 10 S. G. Andrews, 3,541-3,600 feet, 60 bbls.; Midfield Oil No. 1 Mount Mariah Cemetery, 3,760-65 feet, 90 bbls.; Shell Petroleum Corp. No. 11-A J. S. Elder, 3,526-3,607 feet, 60 bbls.; Shell Petroleum Corp. No. 48 W. W. Elder, 3,544-3,671 feet, 58 bbls.; Shell Petroleum Corp. No. 77 J. B. Watson, 3,528-3,637 feet,

(Continued on Page 100)



Zingery Oil Map Co., Fort Worth

Northwestern Henderson County's Flag Lake pool, showing producers, drilling wells and locations. The field is undefined on three sides

Michigan Field Report

By
O. C. PRESSPRICH

Allegan County Leads in a Prolific Week in the Field

SAGINAW, Mich., June 27.—Allegan County swung back into leadership in new Michigan oil producers last week to account for seven of the week's 16 new wells, and also for five of the 10 dry holes. The Buckeye field reported six oil wells, no dry holes; Edenville field two producers and one dry hole; Clare County had one completed oil well and another semicompletion, and Montcalm County reported one 1,000,000-foot gasser in Winfield Township.

Though Edenville, which had held the main part of the spotlight for two weeks, lost the honors the past week to Allegan, it shared with that area the top place for the largest producers of the week, 625 and 600 bbls. daily.

Allegan County—Salem Township

The Salem field contributed three wells to Allegan's total for the week to lead in completions in that area. Salem was considered the fastest and most productive field in the area for several months, but recently has been lacking completions. G. F. Van Eenenaam's No. 1 Moomey, NE NW SE section 21-4n-13w, second successful completion of the same operator within two weeks in the field, added a 225-bbl. well which had been acidized. The test showed good pressure and was rated one of the best in the area. To the west of the Moomey well, Lima Oil Corp. No. 3 Nahr, NW SE NW section 22, brought in a 75-bbl. producer, and Michigan Development Petroleum Co. No. 1 Goodman, SW SW SW section 15, ran its gauge to 200 bbls. daily after acidizing.

Monterey Township grabbed top ranking production honors with two producers good for more than 1,100 bbls. daily, both after acidizing. Sim B. Hood No. 2 Miller, SE NW NW section 16-3n-13w, came into acidized production at 625 bbls. daily, while Rex Oil & Gas Co. No. 1 Jewett, NW SW SE section 9, rated 500 bbls. daily. Both producers rated high among completions in the area in the central part of the Monterey field. Their success is expected further to stimulate the area's development, which has shown more activity than any other Allegan pool. One dry test marred an otherwise perfect record of the field, being Sprenger Brothers No. 1 Barber, SE SE NE section 8, which will be abandoned.

Haynes Oil & Gas Co. No. 1 Harrigan, NW NW NE section 29-1n-13w, Trowbridge Township, which had a favorable show the previous week, developed a 40-bbl. daily producer after acidizing. It was the fifth producer in the field, others being east and south.

One producer and a dry hole marked developments in Dorr Township. Muskegon Oil Corp. No. 1 Podurgiel, SW NW SE section 29-4n-12w, developed the producer, gauged at 100 bbls. after acidizing. Muskegon Development Co. No. 1 Fritza, NE NW NW section 33, in the south part of the field, was a dry test setting up a barrier against extension of the field in that sector.

Two wildcat tests in Watson Township designed to extend the Allegan field failed this past week. They were W. R. Borough, Inc. No. 1 Cavanaugh, SE NE NE section 5-2n-12w, and Rose & Jones No. 1 Almquist, SW SE SE section 32, both of which were plugged.

Wayland Syndicate No. 1 Carpenter, SE SE NE section 7-3n-11w, Wayland Township, marked another Allegan failure and was scheduled for abandonment.

Midland County

Continuing to add to its string of favorable producers, offsets of producing wells in proved territory, but with no boundary extensions, Edenville in Midland County remained in the production picture of the week with two successful tests. One was Gordon Oil Co. No. 2 Verity, NE SW NW section 26-16n-1w, an offset to the Gordon No. 1 Verity, first major extension in the east part of the Edenville field, which gauged 650 bbls. daily after acidizing to rank with the field's leaders. Mammoth Producing & Refining Corp. No. 4 Caplan, SE NW NW section 26, continued development of the Caplan lease with a 150-bbl. daily producer after acidizing. No dry holes were recorded for the week in Edenville.

Turner Petroleum Co. No 1 Verity, SW SW NW section 26, a week ago regarded as a favorable east extension to the field with a gauge of 200 bbls. after acidizing, became another of the freak wells for which Edenville is becoming notorious. Shortly after acidizing the test declined in production to 89 bbls. over a 24-hour period in alternate flows and swabbing. No explanation is given for the decline, although operators are hopeful the test soon will clean itself out.

The only active test in Lincoln Township was scheduled for abandonment. It was Daily Crude Oil Co. No. 1 Valentine, NW SW SW section 15-15n-1e, found dry in the Dundee limestone.

Gladwin County

South or Oard pool development featured Buckeye activity for the week, with five producers scattered in various southern sections. While none of the producers was rated heavy for the field, all were considered commercially favorable. The week's producers gave indications of a flurry of development to come in section 27-18n-1w, where a western outpost producer attracted attention to the sector recently. Seven tests are reported drilling in section 27, indicating extensive exploration of the area. The Kales-Graves Co. added two completed producers to the field. Its No. 4 Woodring-Chovich, SE NE SE section 23-18n-1w, in the so-called midway field, rated 125 bbls. daily after acidizing, while the No. 2 Vassar State Bank, NE NE SE section 27, which a week ago rated 50 bbls. daily naturally, was acidized to 175 bbls. daily. M. L. Jorgensen No. 4 Foster, SW NE NW section 26, continued the activity in that section with a 100-bbl. producer after acidizing.

Rex Oil & Gas Co. No. 2 Gray, SW NW NW section 25, was another 100-bbl. producer after treatment. T. F. Caldwell added a natural producer at his No. 2 Hostetler, NE SE NE section 27, rated at 100 bbls. naturally. It was scheduled for acid treatment. The western sector has developed rapidly since F. O. Whitelow tapped production at his No. 1 Campbell a few weeks ago.

McClanahan Oil Co. in Billings Township logged a failure at its No. 1 Wineman Estate, NE SW SE section 4, which was scheduled for abandonment.

Clare County

Possibility that oil struck in gas sand two weeks ago at James A. McKay No. 1 Loveless, SE NE NW section 35-17n-4w, Grant Township, Clare County, will not develop into commercial production appeared the past week after an acid treatment and a nitroglycerin shot. The test, which unexpectedly logged an oil show in the Michigan Stray while testing for gas, flowed and pumped about 20 bbls. daily two weeks ago. After acid treatment the test declined to about 10 bbls. daily. Future testing of the well has not been determined.

In Freeman Township, an oil show in the Traverse formation of what was intended to be a Dundee limestone test S. J. Higelmire Trust No. 1 Van Horn, NE SW NW section 3-18n-6w, to shut down this past week. Revision of drilling contracts to allow completion in the Traverse was cited as the cause of the shutdown. About 2 bbls. of oil was logged before the shutdown.

Arenac County

Charles W. Teater No. 1 Withey, NE SE NE section 5-19n-6e, only active test in the township, was completed dry.

Montcalm County

H. F. Solomonson No. 1 Jack Estate, NE NW NW section 7-12n-9w, Winfield Township, brought in the only commercial gasser of the week, rated at 1,000,000 feet.

Ogemaw County

Failure was logged at Red Man Oil Co. No. 1 Bennett, SW NE NE section 13, Churchill Township, was completed as a dry test.

Osceola County

In Richmond Township, Hughes & Hansen's attempt to prove up a commercial producer in Osceola resulted in a dry test at the No. 1 Berger, SE SW SW section 35.

Ottawa County

In Zeeland Township, failure was recorded at Robert C. Lentz Trust No. 1 Schumaker, SW NW NE section 29-5n-14w, with all oil-bearing strata unproductive.

Isabella County

In Broomfield Township, Isabella's lone project in the pay zone gauged a hole full of oil and was being tubed for acid treatment. It is Pure Oil Co. No. 13 Wille, C N half N half NW section 4-14n-6w. Commercial production appeared favorable.

Process to Shut Off Water

Another step forward in the search for a chemical process for plugging of porous rock strata, to shut off the flow of water in drilling oil wells, was indicated by the issue the past week of a patent to Carroll Irons of the Dow Chemical Co. on one feature of the process. Dow Chemical Co. is the parent of the Dowell Corp., which produces acids used in pore-opening treatment of oil-bearing strata. At Dow headquarters at Midland, Mich., it is asserted the process still is in the experimental stage.

N. Y.-Penn. Gas Fields

COUDERSPORT, Pa., June 27.—There were no completions in the New York-Pennsylvania deep sand gas fields during the past week but a Clymer Township, Potter County, well drilled into the Oriskany where it found two gas pays and one in Bingham Township, same county, was deep in the Onondaga.

The Clymer Township well, drilled by North Branch Co., reached the Onondaga at 4,462 feet and the top of the Oriskany at 4,475 feet. The first gas show, totaling 2,300,000 feet, was found at 4,475-83 feet and the second, gauging 400,000 feet, was found at 4,485-87 feet. A rock pressure of 593 pounds was registered after 24 hours.

The New York State Natural Gas Co.'s test on the J. D. Morley farm in Bingham Township reached the Onondaga at 5,249 feet and was reported drilling at 5,265 feet with the top of the Oriskany expected momentarily.

McKenry and others are making slow progress on the Stellman farm in Rockland Township, Venango County's first deep test. At 4,678 feet, these operators had drilled through 18 feet of shale. They expect to drill deeper if they fail to find production in the Oriskany.

In other Potter County operations Williamsport Oil & Gas Co. is drilling at 3,240 feet on the U. B. Russell farm in Sharon Township; G. L. Cabot, Inc., at 1,650 feet on the Whitney-Duke farm and at 2,955 feet on the West Bingham Grange farm, both in Bingham Township. New Penn Development Corp. remains shut down at 6,454 feet on the John Hill farm, West Branch Township.

New York State Natural Gas Co.'s test on the L. Dickerson farm in Gaines Township, Tioga County, is

(Continued on Page 91)

North Louisiana, Arkansas

Outposts Show Favorably in Fields of Louisiana-Arkansas

By GEORGE WEBER

SHREVEPORT, La., June 27.—Edge and outpost tests to several fields in the North Louisiana-Arkansas area attracted attention this week, as drilling in general proceeded in routine operation. Cotton Valley, recently extended on the southeast by the first crude oil well in the Lower Marine, shows indications of being extended on the south, as two edge wells cored the Bodcaw sand.

Lisbon has an interesting northwest outpost, which is believed to be a possible producer, although mechanical trouble is preventing early success. The Buckner field of Columbia County, Arkansas, was extended slightly to the west by completion of a good producer. Other scattered deep tests through the tri-state area share in the current interest.

The Cotton Valley field, very much in the spotlight for the past few weeks, continues to attract attention of operators. The field has taken on added importance with discovery of oil in the Bodcaw sand of the Lower Marine. This week, two southern edge tests reached the Bodcaw sand.

Important Showings

The Mid-States Oil Corp. No. 1 Welori Lumber Co., C NW NW section 3-20-10, a mile south outpost test, topped the Lower Marine formation at 8,072 feet. The Bodcaw sand was topped at approximately 8,597 feet, according to data from cuttings. A core taken at 8,615-35 feet showed solid gas sand with a gas and distillate odor. A second core taken at 8,635-55 feet showed the base of the Bodcaw at 8,646 feet. A recovery of 17 feet included 11 feet of tight gray calcareous sand with a gas odor, 1 foot of sandy black shale, and 5 feet of black fossiliferous shale with some sandy shale.

The outpost is located west of Stanolind Oil & Gas Co. No. 1 Pardee, which cored two Bodcaw sands separated by a shale break, the bottom sand, which carried the waxy 39-gravity crude. Important to note in the Mid-States test is that no oil showing was found, indicating that the gas-distillate cap of the field extends at least a mile south of former production limits. The Mid-States test will be deepened 20 feet and a Schlumberger survey will be run.

Three good producers were completed in the Cotton Valley field proper during the week. A large Holloway sand producer, Magnolia Petroleum Co. No. 3 Crichton, in section 33-21-10, gauged 566 bbls. in eight hours on a half-inch choke, making the daily initial production nearly 1,700 bbls. Tubing pressure was 250 pounds and casing pressure 600 pounds. The sand was cored at 5,794-5,803 feet, and total depth is 5,808 feet.

Northwest of the Mid-States outpost, the Fohs Oil Co. No. 1 Crichton, C SE SE section 33-21-10, also a south edge test, cored the Bodcaw sand at 8,482-8,533 feet, after topping the Lower Marine formation at 7,980 feet. Total depth of the hole is 8,598 feet, in sandy shale. An electrical survey showed that the best porosity in the deep sand occurs at 8,484-8,500 feet. Seven-inch casing is being run, and the well is expected to be brought in shortly.

Ohio Oil Co. brought in two deep Bodcaw producers. No. 1 Gray in section 28-21-10 showed an initial of 112 bbls. daily of distillate and an estimated 2,000,000 feet of gas, with tubing and casing pressures 2,100 and 2,400 pounds, respectively. Total depth is 8,359 feet. Flow was through a three-eighths-inch choke.

Ohio Oil Co. No. 1 Jackson, in section 27-21-10, was a much better producer, making 423 bbls. of distillate and an estimated 5,000,000 feet of gas through a three-eighths-inch choke, with casing pressure of 2,650 pounds and tubing pressure of 2,500 pounds. The sand was cored at 8,121-75 feet.

Production by Pool

Estimated daily gross production of all companies for week ending June 24 follows:

NORTH LOUISIANA

	Bbls.
Bellevue	625
Caddo light	4,000
Caddo heavy	2,385
Converse	650
Cotton Valley heavy	75
Cotton Valley light	*11,630
De Soto and Red River	1,410
Elm Grove	345
Haynesville	2,875
Holly	70
Homer	2,650
Lisbon	9,025
Pleasant Hill	105
Rodessa	37,875
Sarepta-Carterville	†510
Sligo	530
Sugar Creek	300
Urania	2,870
Zwolle	1,450
Total	79,380

SOUTH ARKANSAS

Buckner	905
Champagnolle	1,160
El Dorado	1,845
Lisbon	270
Miller County	400
Nevada	655
Rodessa	7,170
Schuler	12,660
Smackover light	2,075
Smackover heavy	16,310
Stephens	570
Troy	1,225
Urbana	1,215
Village	190
Total	46,650

Texas side of Rodessa field 29,645 bbls. daily.
*4,785 bbls. is distillate. †220 bbls. is distillate.

Lisbon Outpost

In nearby Claiborne Parish, three tests attracted attention. The first, E. T. Oakes and others No. 1 Kilgore, NE cor. SE section 28-21-15, recemented casing after an unsuccessful test in the field producing horizon. The northwest outpost is bottomed at a corrected total depth of 5,357 feet, with casing set at 5,270 feet. The test was acidized during the past week, using 2,000 gallons and 150 bbls. of oil, after which it swabbed dry. It is believed that the casing seat gave way, and operators are recementing for another test.

In the area between the Lisbon and Sugar Creek fields of Claiborne Parish, Weaver Oil Corp. No. 2 Edmonds, in section 16-20-5, was abandoned as dry after plugging back from 5,851 feet to 4,470 feet. A drill-stem test at 4,375-4,470 feet brought a small show of gas and 2,950 feet of mud in 30 minutes on quarter-inch chokes.

(Continued on Page 104)

NIGHT VIEW OF PETROLEUM BUILDING FOR NEW YORK'S WORLD FAIR

A brilliant triangle of gleaming blue metal is supported by four simulated oil tanks. The petroleum industry exhibition, to cover 64,899 square feet, will show, in a series of dramatic displays, how research in petroleum has aided human progress. The derrick will be manned by workers who will demonstrate the process of drilling for oil.

The walls of the building will be constructed to form four flaring tiers, suggesting a cooling tower. The supporting tanks, 20 feet high, will house exhibits showing how transportation has been revolutionized by petroleum, also how agriculture and industry in general have been advanced by the petroleum industry's scientific development.

The origin and development of the petroleum industry will be shown by an animated relief map of the United States, southern Canada and northern Mexico dotted with miniature oil derricks. Miniature rivers of actual water will course through and around the map and oceans will surround it. The map will be exhibited in the Petroleum Garden where modern refining processes will be demonstrated by an animated model of a refinery.

The companies participating in the exhibition are American Oil Co., Atlantic Refining Co., Cities Service Oil Co., Gulf Oil Corp.; Pure Oil Co., Richfield Oil Corp. of New York, Shell Union Oil Corp., Sinclair Refining Co., Socony-Vacuum Oil Co., Inc., Standard Oil Co. (New Jersey) Sun Oil Co., Texas Co., Tide Water Associated Oil Co., and Phillips Petroleum Co.

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Central West

By STAFF CORRESPONDENT

35 New Oil Wells in Illinois; Western Kentucky Price Cut

MATTOON, Ill., June 27.—Thirty-five oil wells and 10 dry holes was the record of the past week in Illinois. Several of the dry holes were not permanently abandoned and may be drilled to deeper formations than those producing in the respective pools.

Forty-eight new operations were started, or three more than the number of completions. Cass County and Gallatin County were added to the wildcat areas. The west side of the Centralia field, in Clinton County, continues very active, but the Marion County side, inside the city, had only seven new operations reported, as against nine completions. Centralia completions in both counties averaged 207 bbls. per well in initial production. The 35 new oil wells, with a total initial production of 11,848 bbls., averaged nearly 339 bbls. per well.

The record of completed work during the week follows:

Wells Completed

In Fayette County Whisenant & Henshaw No. 1 Zanders, SW SE NW section 36-9n-3e, was drilled to 1,672 feet and plugged back to 1,600 feet and tested. It bailed dry and then filled 50 feet with salt water in one hour. It topped Cypress sand at 1,517 feet, Weiler at 1,548-78 feet, and Benoist at 1,655-70 feet, which showed only salt water. The test was temporarily abandoned.

Carter Oil Co. No. 1 Wright, NE NW NE section 21-8n-3e, was shot with 20 quarts in Benoist sand at 1,580-1,603 feet, and pumped 92 bbls. initially.

In Bond County Whitehead & Morey No. 1 Polland, NW SE SW section 26-6n-2w, was dry and abandoned at 3,352 feet. Trenton rock was topped at 3,320 feet, and water appeared at 3,543-47 feet. Tops included Ste. Genevieve at 1,201 feet, St. Louis at 1,362 feet, and Devonian at 2,430 feet.

In Fayette County Sam Jarvis No. 1 Yakey, NE NW SE section 6-7n-3e, corrected location, flowed 365 bbls. in 24 hours through casing on its completion test. It had been shot in Benoist sand at 1,550-75 feet with 25 quarts of nitroglycerin.

In Clay County Carter Oil Co. No. 1 W. T. Cox, SE SE SW section 14-4n-5e, was abandoned at 4,325 feet. It topped Devonian at 4,232 feet. It was acidized with 2,000 gallons, but the formation produced only sulfur water with a small showing of oil.

In Richland County Pure Oil Co. No. 4 Correll, C N half SW SE section 33-4n-9e, was drilled to 3,040 feet and acidized with no results in oil and was temporarily abandoned. Same company's No. 3 Correll, C S half SW SE section 33-4n-9e, was also a failure at 3,025 feet. It was acidized at 2,975-82 feet, but there was no oil showing. It was temporarily abandoned. Pyramid Oil Co. No. 1 George Sly, SE SE SE section 22-4n-10e, had McClosky lime at 3,016-23 feet, and after a 5,000-gallon acid treatment it flowed an estimated 1,480 bbls. of oil in 24 hours. The Texas Co. No. 3 Zirkle, SW cor. section 23-4n-10e, after a 600-gallon acid treatment at 3,024-32 feet, total depth 3,050 feet, flowe an estimated 1,085 bbls of oil in 24 hours.

In Lawrence County Payne and others No. 1 Emerson & Oliphant, N half NW SW SE section 20-4n-11w, was dry and abandoned at 1,215 feet. It had a hole full of water from Bridgeport sand.

In Clay County Kingwood Oil Co. and others No. 1 Fred Graham is a 500-bbl. well from McClosky lime at 2,971-81 feet. It was twice acidized with 3,000 and with 7,000 gallons. The well had no pipe-line connections, but the Owensboro Corp. is trucking 100 bbls. daily.

In Richland County Mammoth Producing & Refining Co. No. 1 McCauley, SE SE SE section 20-3n-9e, was drilled to 3,123 feet without finding a pay section and is temporarily abandoned. Mammoth had no better success in No. 1 Glen Stewart, SE SE SW section 21-3n-9e, which was drilled to 3,201 feet and plugged back to 3,120 feet and shot with 200 quarts at 3,055-3,120 feet, with no oil resulting. It was temporarily abandoned.

In Clay County Pure Oil Co. No. 1 Nellie V. Bunn, C W half SE NW section 16-2n-8e, flowed 799 bbls. in 24 hours after a 5,000-gallon acid treatment in pay at 3,020-50 feet, total depth 3,055 feet. Pure No. 4 W. H. McKinney, C W half SE SW section 9-2n-8e, total depth 3,040 feet, flowed 638 bbls. in 24 hours following a 5,000-gallon acid dose at 2,996-3,040 feet.

In Richland County J. V. Wicklund No. 1 McCauley B, NE SW NW section 7-2n-9e, flowed 1,053 bbls. in 24 hours from McClosky pay at 2,980-88 feet, total depth. It was treated with 5,000 gallons of acid.

Clinton County

In Clinton County Bell Oil Co. No. 3 Maddox, NW cor. SW SW section 4-1n-3w, Bartelso pool, was shot with 40 quarts at 968-82 feet and 10 quarts at 992-98 feet and made an initial production of 127 bbls. of oil. On the west side of the Centralia field Shell Petroleum Corp. No. 1 Hanseman, SW SW SE section 1-1n-1w, started at 150 bbls. from Benoist sand at 1,347-74 feet after a 10-quart shot. Carpenter & Goldburg No. 1-B C.B.&Q.R.R., SW cor. SE SE SE section 1-1n-1w, had Benoist sand at 1,364-81 feet and made a 75-bbl. pumper after a 10-quart shot. J. Alford No. 1 Rittenhouse, NW cor. SE NE SE section 12-1n-1w, was shot with 20 quarts at 1,362-75 feet and started at 120 bbls. a day. Shell Petroleum Corp. No. 2 Hanseman, NW SW SE section 1-1n-1w, had Benoist sand at 1,343-75 feet, shot it with 21 quarts and has a 165-bbl. pumper. Adams Oil & Gas Co. abandoned the location for No. 6 Schmitz, SW NE SE section 2-1n-1w. Shell Petroleum Corp. No. 6 Buehler, NW NW NW section 12-1n-1w, was shot with 10 quarts at 1,365-69 feet and pumped 20 bbls. of oil and 18 bbls. of water. Shell Petroleum Corp. No. 1-B Allison, SW NE NE section 12-1n-1w, pumped 83 bbls. of oil and 11 bbls. of water from sand at 1,365-82 feet which had not been shot. Adams Oil & Gas Co. No. 1 E. Buehler, S half SW SE SE section 13-1n-1w, was shot with 10 quarts at 1,370-73 feet and is estimated as a 110-bbl. well. Dixie Oil Co. No. 1 John Gutzler, NE SE SE section 13-1n-1w, started at 300 bbls. a day from Benoist sand at 1,338-72 feet, which had not been shot. Dallas E. Hawkins No. 1 Alice McNail, NE cor. SE SE NE section 13-1n-1w, was given a 10-quart shot in Benoist sand at 1,353-80 feet and pumped 200 bbls. the first 24 hours. Ed Lange No. 1 Hilda Kleeman, Lot 19, Block 1, Kohl Warner subdivision, SE SE NE section 13-1n-1w, had Benoist at 1,358-84 feet, and a 10-quart shot developed an initial production of 110 bbls. on the pump. Pace & German No. 1 Fallon & Cosco, NW cor. SE SE section 13-1n-1w, with sand at 1,348-70 feet, pumped 250 bbls. in 24 hours without a shot. Pace & German No. 2 Fallon & Cosco, NW cor. SW SE SE section 13-1n-1w, corrected location, had Benoist at 1,340-73 feet and pumped an estimated 240 bbls. without a shot. Pace & German No. 3 Fallon & Cosco, NW cor. SW SE section 13-1n-1w, had Benoist at 1,350-76 feet and pumped 200 bbls. the first day without a shot John Pugh Drilling Co. No. 1 Minnie Bachs, E half NE SW SE section 13-1n-1w, had Benoist sand at 1,360-75 feet, which was shot with 10 quarts, and the well pumped 284 bbls.

On the Marion County side of the Centralia field T. T. Eason & Co. No. 1 Holman, SW cor. SE NW SW section 18-1n-1e, was shot with 10 quarts in Benoist sand at 1,350-56 feet and pumped an estimated 300 bbls. Same operator's No. 1 Mierman, CWL SW section 18-1n-1e, topped Benoist sand at 1,338 feet, shot it with 10 quarts, and the well pumped 250 bbls. J. Q. Gill No. 1 Louise Cross, NW SW SW section 18-1n-1e, with Benoist sand at 1,332-65 feet, pumped 247 bbls. in 24 hours without a shot. Hawley and others No. 1 Thompson, NW SW NW section 18-1n-1e, Benoist at 1,355-80 feet, shot with 10 quarts, pumped 110 bbls. initially. Sparta Oil Co. No. 2 Ranier, SE cor. SW SE SW section 18-1n-1e, pumped 160 bbls. from sand at 1,361-82 feet, which had not been shot. Joe Murphy No. 1 fee, in Block 44, SW SE NW section 18-1n-1e, was shot with 10 quarts in sand at 1,361-90 feet and pumped 105 bbls. of oil and some water. Huff, Stauffer & Boughton Royalty Co. No. 1 Gouchenour, N half SW SW SW section 18-1n-1e, had sand at 1,349-79 feet, shot it with 20 quarts and have a 450-bbl. initial producer on the pump. Broddus and others No. 1 Redstock, with Benoist at 1,348-76 feet, which was shot with 10 quarts, have a 400-bbl. well. Bell Oil Co. No. 1 Oestrich, SW cor. NW NE NW section 19-1n-1e, found Benoist at 1,374-90 feet, shot it with 15 quarts and the well pumped 100 bbls. the first three hours and 450 bbls. in 24 hours.

In Clay County Pure Oil Co. No. 1 Isaac Bowles, C E half SW NW section 27-1n-7e, with pay at 3,144-50 feet, swabbed and flowed 46 bbls. of oil in 10 hours. When put on the pump it produced 28 bbls. of oil and 262 bbls. of water in 24 hours. Pure No. 1 Arthur Schiele, C W half SE SW section 22-1n-7e, had pay at 3,133-42 feet. It was acidized with 1,250 gallons, and then with 5,000 gallons, and made 265 bbls. of oil and 105 bbls. of salt water in 24 hours. Put on the pump, it produced 147 bbls. of oil and 132 bbls. of salt water.

In Jefferson County Carter Oil Co. No. 1 Hawkins, NW NW NW section 15-1s-2e, was shot in Benoist sand at 1,934-51 feet with 15 quarts and pumped 225 bbls. in 24 hours. Carter No. 1 Alonzo Moore, NE SW NW section 15-1s-2e, had Benoist at 1,925-36 feet and bailed dry. Then it showed 2 bailers of salt water with a little oil in one hour. A Schlumberger test will be made. Kingwood Oil Co. No. 1 Webb, C E half SW NE section 4-2s-2e, was abandoned at 2,552 feet. It penetrated McClosky lime at 2,458-65 feet and developed sulfur water. It missed Benoist sand.

First Reports of New Work

In Cass County Edward Duval was drilling at 170 feet with 10-inch casing set at 110 feet in No. 1 H. Bowen, NW NW SE section 30-17n-12w.

In Clark County Black Gold Oil Corp. No. 1 Briscoe, 620 feet from west and 950 feet from south lines of SW quarter section 32-12n-14w, set 8-inch casing at 79 feet and was drilling at 300 feet.

In Edgar County Stipes and others spudded No. 1 Wilhoit, SE NW SE section 18-12n-13w. Stipes and others No. 2 Daugherty, NE NW NW section 10-11n-14w, was running 6-inch casing, total depth 325 feet. Stipes and others No. 1 Daugherty, SE NW NW section 10-11n-14w, will be acidized at 470 feet.

In Fayette County W. C. McBride, Inc., No. 1 Stokes, SW SW NE section 14-8n-3e, was rigging up standard tools. Carter Oil Co. No. 2 Jennie Brauer, NE SE SE section 21-8n-3e, is a location; Carter Oil Co. No. 1 Tom Wright, SE SW SE section 20-8n-3e, drilling at 241 feet; Carter Oil Co. No. 1 Sloan, SW NW NW section 11-8n-3e, rigging up rotary; Carter Oil Co., No. 2 Holley, NW SW NE section 11-8n-3e, rig up.

In Marion County Kirk D. Holland No. 2 Cemetery Lot, Patoka, in NE NW NW section 28-4n-1e, was rigging up; B. C. Morrison No. 1 A. Rittenhouse, NW cor. SW NE SE section 19-2n-1e, spudded.

In Clay County Pure Oil Co. No 1 Emma Greeson, C N half SE NE section 12-2n-8e, was moving in rotary tools; Olson Drilling Co. No. 1 Madding, C S half NE NW section 12-2n-7e, rigging up rotary; Wiser Oil Co. No. 1 John Daley, C W half NW NE section 12-2n-7e, cellar and pits.

In Clinton County Santa Fe Oil Co. No. 4 Robbins, 1,120 feet north and west of SE cor. section 5-1n-3w, spudded; John Pugh Drilling Co. No. 1 Hoeinghaus, 1,785 feet from east and 995 from south lines of SE quarter section 13-1n-1w, Centralia townsite, had Benoist

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sand at 1,362-71 feet, will shoot; Adams Oil & Gas Co. No. 4 Rothemyer, 330 feet from east and 720 feet from south line of SE quarter section 13-1n-1w, rigging up rotary; Halverson Oil Co. No. 1 Charles Marshall, Lot 4, Block 1, Pullen subdivision, NE cor. SE section 13-1n-1w, Benoist sand at 1,362-80 feet, with casing set; Adams Oil & Gas Co. No. 3 Buehler, SE cor. section 13-1n-1w, set 8⅝-inch casing at 638 feet. Crancher and others No. 1 Milmaker, NE cor. NW NE section 24-1n-1w, Benoist sand at 1,368-80 feet with casing set; Milhahan No. 1 Bogard, Lot 22, Block 4, Finney Heights, NW NE NE section 24-1n-1w, spudded; Pierson Securities No. 1 Stanford, Lot 23, Block 2, Finney Heights, NE NE NE section 24-1n-1w, drilling at 285 feet; William Smith No. 1, Lot 6, Block 2, Finney Heights, NE NE NE section 24-1n-1w, set 8⅝-inch at 636 feet; U. J. Hester No. 1 fee, Lot 22, Block 2, Finney Heights, NE NE NE section 24-1n-1w, rigging up machine; O. L. Ray and others No. 1 Central B. & L., Lot 11, Block 2, Finney Heights, NW NE NE section 24-1n-1w, drilling at 1,282 feet; Parish, Keller & Morgan, Lot 14, Block 3, Finney Heights, NW NW NE section 24-1n-1w, drilling at 1,248 feet.

Harry Rogers No. 1, Lot 14, Block 8, Finney Heights, SE NE NE section 24-1n-1w, rig up; American Seismograph No. 1 Foutch, Lot 5, Block 6, Finney Heights, SW NE NE section 24-1n-1w, drilling at 219 feet; Boyce & Welch No. 1 Murgin, Lot 6, Block 8, Finney Heights, SE NE NE section 24-1n-1w, drilling at 325 feet; Shell Petroleum Corp. No. 4 Hausman, SW NW SE section 1-1n-1w, drilling at 125 feet; Adams Oil & Gas Co. No. 3 Felton, 40 feet north of C of SW NE NW section 1-1n-1w, rig up; Shell Petroleum Corp. No. 1 Dunbar, 997 feet from west and 330 feet from south lines of NW quarter section 12-1n-1w, drilling at 697 feet; Bailey & Lucas No. 1, Lot 20, Block 1, Second Home Addition, NE NE SE section 12-1n-1w, rigging up machine.

In Marion County, Centralia field, John Pugh Drilling Co. No. 1 Cunningham, Lot 3, Block 52, near C E half NE SW section 18-1n-1e, drilling at 1,200 feet. Harry Rising and others No. 1 Carrie Smith, SW cor. SE SE SW section 18-1n-1e, spudded; Bell Oil Co. No. 1 Home B. and L., near C N half NW section 19-1n-1e, drilling at 160 feet; Giffert Drilling Co. No. 1 Ryan, NE NW NW section 18-1n-1e, drilling at 535 feet; Cypress Oil & Gas Co. No. 1, SW cor. NW NW section 19-1n-1e, drilling at 203 feet; E. M. Smith No. 1, NE cor. NW cor. SW NW section 19-1n-1e, set 8¼-inch casing at 625 feet; Cole & Simmel No. 1 Schroeder, SE cor. SW NW NW section 18-1n-1e, rigging up rotary; I. B. Davis and others No. 1, near NE cor. SW SW NW section 7-1n-1e, drilling at 425 feet; Sheppard and others No. 1 Frasier, NW NW SW section 16-1n-1e, a wildcat, derrick up.

In Wabash County J. S. Young No. 1 Barney & Whiteside, NE cor. SW NE NW section 1-1n-12w, rigging up standard tools.

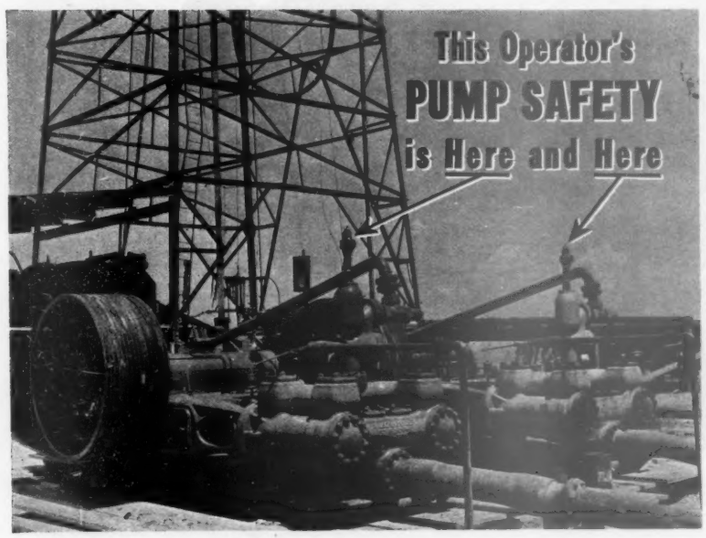
In Washington County Morris No. 1 Kosten, NE cor. NW section 4-2s-5w, drilling at 651 feet.

In Gallatin County Bailey & Lucas No. 1 Harry Logan, SW cor. SE NE NE section 21-8s-8e, rigging up standard tools.

WESTERN KENTUCKY

OWENSBORO, Ky., June 27.—The Ohio Oil Co. reduced the price it pays for Western Kentucky crude on June 22. The old price was $1.40 per barrel. The new price is $1.30 per barrel. The Producers Pipe Line Co. met the Ohio's price at once. The price in the Birk City pool in Henderson County, the only flush pool of sizeable potential production in the state, was recently reduced to $1.35 by the Fordsville Pipe Line Co. but the Aetna Oil Refining Co. continued to pay $1.40 per barrel in that field. It was the original purchaser, barging the oil from the field to its Louisville refinery. However, it is reported that the Aetna company contracted with Birk City producers to pay the Ohio Oil Co.'s posted price for Western Kentucky oil. The Fordsville Pipe Line Co. on June 23 met the Ohio's price of $1.30 outside of Birk City and put a price of $1.25 on Birk City oil. The 5-cent differential in the Birk City field was established because the crude in that field was said to be "sour," while other Western Kentucky crudes are "sweet."

Eighteen wells were completed in Western Kentucky in the past week, eight oil wells, one gas well



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and nine dry holes. One well in the Birk City pool in Henderson County was estimated at 1,440 bbls. a day while another was classified as "a good well" and a third made a 200-bbl. showing. One dry hole was reported in the pool. A number of wells are close to the pay horizon.

Four Evansville men have formed the Cleopatra Oil Co., Inc., with lease holdings of 2,656 acres in McLean and Daviess counties, near Cleopatra, according to articles of incorporation filed in the recorder's office at Evansville.

Incorporators are Paul Lynch, F. G. Drake, J. L. Kennard and Erwin S. Kiefer. These men with Charles J. Folz, H. L. Stone and Charles McGlumphy form the board of directors.

Operations

Following is the detailed record of the week's operations:

Butler County, 1¾ miles northeast of Silver City: Porter Evans and others No. 1 A. R. Brown, rigging up. Rochester district: H. C. Darby and others No. 2 V. R. Hammers, dry hole; Frank Bernier and others No. 4 Kyle Willis, moving in; A. C. Cornell and others No. 2 W. A. Tanner, moving in. Four miles south of Huntsville: Trader and others No. 1 Hub Harper, moving in.

Daviess County, Birk City district: Madden Oil Co. No. 1 Onis Greer, core drilled McClosky lime at 1,861-91 feet, total depth 1,892 feet, cemented casing, ready to drill in. Habit district: Kentucky Natural Gas Co. No. 3 Robert Kirk, dry hole, total depth 750 feet. Utica district: Daugherty & Ellis No. 3 J. A. Leet, 25 bbls. per day from Jett sand. Pellville district: Globe Oil Co. No. 8 J. H. Miles, drilling at 100 feet.

Hancock County, Cabot district: Kentucky Natural Gas Co. No. 1 W. F. Anderson, dry hole, total depth 835 feet; Kentucky Natural Gas Co. No. 1 H. E. Beatty, spudding in. Easton district: William Ralston and others No. 1 H. T. Keown, 5 acres, dry hole, total depth 823 feet. Cloverport district: F. L. Damron and others No. 2 Alonzo Ray, dry hole, total depth 578 feet.

Henderson County, Birk City district: A. E. Roscoe No. 1 Ollie Benham, 1-acre tract, cored McClosky at 1,886-1,901 feet, acidized with 5,000 gallons, swabbed 60 bbls. per hour for four hours, shut down while installing pump; Hoosier Drilling Co. No. 3 C. T. Black well, moving in cable tools to drill in McClosky; same company's Nos. 4 and 5, rigging up; Carter Oil Co. No. 2 O. L. Boswell, drilled McClosky to 1,902 feet, no estimate on production other than it is a good well; Carter Oil Co. No. 1 Francis Dempewolf, west tract, total depth 1,881 feet, 17 feet of McClosky saturation, acidized with 3,000 gallons, estimated a 200-bbl. well; No. 2 Francis Dempewolf, west tract, derrick being set up; Thompson Drilling Co. and others No. 1 Mrs. Beulah Gilmore, dry hole at 2,115 feet; Kentucky Natural Gas Co. No. 1 Annabella Haynes, spudding in; W. E. Hupp and others No. 1 T. C. Jones, 14-acre tract, set surface pipe at 150 feet; Carter Oil Co. No. 1 L. M. Mauzey, location; Carter Oil Co. No. 1 T. C. Jones, 20-acre tract, location; T. H. Polk and others No. 1 T. H. Polk, 1-acre tract, set surface pipe at 150 feet. Corydon district: Sun Oil Co. and others No. 1 H. R. Trigg estate, drilling at 1,600 feet.

McLean County, Grindstone Hill district: Burt Camron and others No. 5 W. B. Ashton, Mississippi lime at 1,548 feet, drilling at 1,650 feet. North Livermore district: J. C. Miller, trustee, No. 12 Mrs. Fannie Foley, 25 bbls. a day from Bethel sand at 1,130 feet; O. D Vickers and others No. 2 R. B. Hoover, drilling at 120 feet; Sunflower Oil & Gas Co. No. 7 Shockley Brothers, dry hole at 1,458 feet. South Livermore district: Mathews & Preston No. 5 Hollis Howell, spudding in; Roy Mace and others No. 2 J. E. Howell, 35-acre tract, dry hole through Jett sand, total depth 1,185 feet; No. 3 Howell, moving in; Sunflower Oil & Gas Co. No. 1 J. E. Howell, 40-acre tract, spudding in. Island district: South Penn Oil Co. No. 5 H. K. and John Kirtley, 75 bbls. a day from Jett sand at 1,404-34 feet, total depth 1,438 feet. Nucklos district: Kentucky Natural Gas Co. No. 3 W. A. Stevens, dry hole at 1,228 feet.

Ohio County, Dundee district: Charles Marsh and others No. 1 J. S. Babbitt, 100,000 feet of gas from Jett sand at 365-88 feet, total depth 393 feet. Adaburg district: G. W. Hardie and others No. 3 Mrs. Nannie Bean, 30 bbls. per day from Jett sand. Pellville district: H. A. Henry No. 1 S. C. Flowers, old well drilled deeper, to 1,477 feet, was plugged back to save original Barlow well at 680 feet. Beda district: Kentucky Natural Gas Co. No. 1 G. W. Johnson, drilling at 150 feet. Friendship Church district: Cane Run Petroleum Co. No. 22 C. J. Rhoades, 20 bbls. per day from Barlow sand.

Webster County, Sebree district: I. B. Browning and others No. 6 J. R. Ramsey, deep test, drilling at 2,314 feet.

EASTERN KENTUCKY

ASHLAND, Ky., June 27.—Three small oil well completions in Powell County are included in the week's report of operations in the Eastern Kentucky field. All three wells completed were as follows:

The South Penn Oil Co. completed No. 6 John Brandenburg, on South Fork in the South Fork district. Arthur E. Wireman completed No. 4 Stewart Brothers No. 1, on South Fork, and Joe E. Brown, treasurer, completed No. 3 Lowery heirs, at Mount Springs. All three are 1-bbl. wells.

Other operations in Powell County include the following: South Penn Oil Co. drilling at 400 feet in No. 23 Allie J. McCoy, on South Fork; Wireman Brothers drilling at 150 feet in No. 4 Albert Stewart, South Fork, and Mrs. Agatha Wireman drilling at 400 feet in No. 23 J. M. Townsend, in the same vicinity.

In Lee County, Price Fraley and others have reached the 520-foot level in No. 2, Flahaven Land Co. 500 acres, on Big Sinking in the Big Sinking district. In the same district, South Penn Oil Co. was drilling at 515 feet in No. 107, Flahaven Land Co tract.

In Pike County, Inland Gas Co. was drilling at 2,252 feet in No. 199 Helen Leslie, in Big lime.

In Floyd County, Inland Gas Corp. was spudding No. 201 Layne heirs, on Toms Creek.

The Kentucky-West Virginia Gas Co. is down 2,190 feet in slate and shells in No. 567 M. Slone and M. D. Slone, on Levisa Fork, and is drilling at 1,160 feet, in lime, in No. 571 Noah Jervis, near by. The same company was below 2,130 feet in No. 573 Jennie Caldwell, in the same vicinity, with drilling continuing in slate and shells.

In Martin County, the Kentucky-West Virginia Gas Co. is idle at Nos. 5242 and 5243, on C. W. Preece land on Coldwater Fork, and is grading road to location of No. 5244 also on the Preece land. The same firm is moving to location of No. 5245, also on the C. W. Preece land.

CENTRAL OHIO

LIMA, Ohio, June 27.—A Medina County oil well in the Berea, the pay sand of which equaled nearly one-third of the total depth of the hole, marks the highlight for the week. In Chatham Township, Preston Oil Co. No. 26 Bertha Parent, Lot 5, made 45 bbls. of oil the first 24 hours after a shot from the Berea at 233-346 feet. The sand was 110 feet thick.

In Athens County, Carthage Township, C. W. Nuzum No. 1 Jess Nickoson, Fraction 24, made 212,000 feet of gas in 24 hours at 1,814-21 feet.

In Coshocton County, Newcastle Township, H. E. Perkins No. 1 P. A. Frazee, Lot 16, was plugged after testing a small show of oil in the Clinton at 2,920 feet.

In Knox County, Union Township, H. E. Perkins No. 1 A. H. McMillen, section 3, was abandoned at 2,893 feet.

In Monroe County, Malaga Township, Barnesville Development Co. No. 1 Margaret McBroom, section 34, is a small gas well at 2,025 feet.

In Vinton County, Richland Township, Kelch Brothers No. 1 A. M. Gorrell, section 2, is a small gas well in the Hamden sand at 744 feet.

In Meigs County, Rutland Township, Byron Bing No. 4 Everett Lambert, section 5, found the Maxon sand dry at a depth of 1,004 feet. In Salisbury Township, A. N. Bengel No. 1 J. C. Chase, section 34, was a dry hole in the Maxon sand at 1,127 feet.

In Washington County, Aurelius Township, Ed Kline No. 7 D. B. Torpy, section 21, is a 5-bbl. pumper from the Berea at 1,680-85 feet. In Warren Township, C. M. Ross No. 18 James Cooper, section 28, was dry in the First Cow Run sand at 971 feet.

Lima Field

The test of the Sun Oil Co. on the Mary Crum tract, section 7, Clinton Township, Seneca County, drilled through the Trenton rock and struck green shale at 2,065 feet, with the pay sand at 2,076 feet; the hole filled up 130 feet with oil. Drilling will be continued into the sand. In the same township and county, A. J. West No. 3 A. M. Clouse is drilling 400 feet into the Trenton.

Eastern Fields

(Continued from Page 78)

in the I. C. Miller test and 1,888 feet in the Louisa E. Long test. United Fuel Gas Co. is drilling at 830 feet in W. J. Glass and others; 1,636 feet in I. W. Cavender; 1,318 feet in W. J. Glass; 2,438 feet in W. A. Fisher and others.

Guy B. Ray has reached 4,859 feet in the Emmett Thaxton test; Mullins Gas Co. 4,995 feet in the Esta Fisher Bonham test and is building rig for J. C. Fisher and others test and rigging up W. H. O'Dell test.

Liosag Fuel Co. is down 4,850 feet in the H. C. Matthews test; Phillips K. Harness, 3,900 feet in the Lena K. Snodgrass test; Spartan Gas Co., 1,540 feet in the R. B. and Fred Baldwin test; Poca Fork Oil & Gas Co., 1,340 feet in the Levi Combs test; Geary-Morley Gas Co., 1,456 feet in the Diana J. Milam heirs test; Columbian Carbon Co., 4,453 feet in the Boyd Castro test; 2,180 feet in the Johnson & Gibson and others test; 760 feet in the L. P. Rollins test; rigging up the Lena Castro test.

In Poca district, West Virginia Gas Co. is down 1,000 feet in the Spencer-Canterbury test and building rig for the Fisher-Newhouse test. In Union district it topped the Oriskany at 4,887 feet in the J. E. Layne and others test.

New Work

In Braxton County, Pittsburgh & West Virginia Gas Co. has a location for No. 2 John J. Bender in Birch district, elevation 956 feet. In Cabell County, Lower Toms Creek Gas Co. has a location on the Ida Ramsey farm in McComas district, elevation 875 feet. Meabon Drilling Co. located a second test on the Walton, Wilson and others lease in Guyandotte district.

In Calhoun County, Paul E. Garrett and O. E. Garrett, Jr., have a location for No. 3 Lake, Fogel and Frank Wilson in Sherman district, elevation 751.86 feet.

In Gilmer County, Otho Gainer and others have a location on the Fletcher Stout farm in Center district, elevation 1,020 feet. In DeKalb district, McCall Drilling Co. has a location on the Fleet A. Fling farm, elevation 1,011 feet.

In Kanawha County, Winifrede Co. has a location on the Bedford lease in Cabin Creek district, elevation 1,200 feet. Pure Oil Co. has a location for another well on the Slaughter Creek Coal & Land Co.

In Monongalia County, Morris Oil & Gas Co. has a location on the Peninsula Co. lease in Grant district. In Ritchie County, Tri-County Producing Co. has a location for No. 4 E. W. Bell, elevation 1,193 feet in Union district. In this district, Carnegie Natural Gas Co. will deepen No. 1 A. R. Drake.

In Wayne County, Chartiers Oil Co. has a location for a second test on the G. T. Saunders farm in Butler district. In Wood County, C. E. Love is drilling at 950 feet in the A. T. Athey test in Williams district.

Deep Tests

In Jackson County, United Carbon Co. is down 1,975 feet in the No. 3 Elizabeth Ward Perkins in Washington district. In Ravenswood district, Joe Rubin has reached 1,935 feet on the W. J. Brown farm. In Ripley district, Cunningham Gas Co. is fishing at 4,250 feet in the E. F. Cunningham test.

In Pleasants County, Columbian Carbon Co. is drilling at 1,200 feet on the Giles Hammat heirs on the Burning Springs anticline in Grant district. In Lubeck district, Wood County, W. H. Bickel is ready to start through the Corniferous lime to the Oriskany in the test on his fee.

N. Y.-Penna. Gas Fields

(Continued from Page 85)

drilling at 4,558 feet after reaching the Tully at 4,512 feet. The Updegraph test on the Erickson farm in Elk Township, Warren County, scheduled to test the Medina, is fishing for sand pumpings at 1,600 feet. This test found water in the Newburg at 5,150 feet.

Another Woodhull Township test was started in New York during the past week when G. L. Cabot, Inc., spudded in its well on the Gibson farm. This company is also drilling 1,220 feet on the Coral Cook farm, Woodhull Township, Steuben County, and Hanley & Bird are drilling at 3,063 feet on the M. E. Woodward farm after passing the Tully at 2,886-2,940 feet.

Van Gelder and others have the rig up for another Willing Township, Allegany County, test and Empire Producing Co. which recently opened up a new producing area in this township is building the rig for a second test on the Floyd Wilson farm.

Rocky Mountain Area

By
T. R. INGRAM

Gas Field Opened in Carbon County, Wyo., With Big Well

DENVER, Colo., June 27.—Wyoming has a new gas field in Carbon County in the Cunningham Oil Co., Inc., wildcat on the Oil Springs structure which tested 27,000,000 feet through the drill stem from the Sundance. The Italo Petroleum Corp. outpost on the northwest of Hamilton dome, increased from 100 to 400 bbls. per day upon being deepened and acidized.

The McElmo Oil Co. wildcat in Montezuma County, Colorado, ran into salt at 4,350 feet, that formation being absent in the old Midwest well 3 miles to the northwest. Continental Oil Co. Cottonwood test in Prowers County had sulfur water in the base of the Kansas City lime.

G. H. Lund No. 1 Dahlen, between the Kevin-Sunburst and Cut Bank fields in Montana, looks like it will make a good well in the contact. There was one small completion in Kevin-Sunburst.

Columbia Crude Oil Corp. test in the Seven Lakes district, Grand County, Utah, was unable to recover tools and is being abandoned.

NEW MEXICO

New operations in Lea County, New Mexico, in the past week included Magnolia Petroleum Co. No. 12 Bridges, C SE SE section 26-17-34, cellar and pits dug; Lem Peters No. 2 L. J. May, C W half SE SE section 27-22-37, drilling at 365 feet; Phillips Petroleum Co. No. 8 Santa Fe, C NW NW section 5-18-35, derrick up; Rowan Drilling Co. No. 2-A Elliott, C NE SW section 27-22-37, drilling at 2,850 feet; Shell Petroleum Corp. No. 3-A State, C SE NE section 31-17-35, location staked; Shell Petroleum Corp. No. 1-D State, C SW SW section 31-17-35, location; Shell Petroleum Corp. No. 1 Whitten, C S half SE NE section 33-23-36, rigging up rotary; Twin Oil Co. No. 1 Joyce-Pruitt, C SE SE section 31-21-37, rigging up rotary.

Eight wells were completed in the Lea County fields, two of which were failures.

Magnolia Petroleum Co. No. 3-K State, C SE SE section 31-17-35, top of pay 4,366 feet, total depth 4,641 feet, flowed 266 bbls. naturally in seven hours.

Phillips Petroleum Co. No. 4 Santa Fe, C SW SE section 31-17-35, pay topped at 4,395 feet, total depth 4,662 feet, flowed 22 bbls. per hour, with gas at the rate of 490,000 feet per day.

The Texas Co. No. 1-P State, C NW SE section 7-18-35, small showing of oil and gas at 4,750 feet, total depth 4,907 feet, dry and abandoned.

Continental Oil Co. No. 1 E. E. Marsh, C NE SE section 31-20-39, tools lost at 4,355 feet, abandoned.

Twin Oil Corp. No. 1 State, C SE NW section 32-21-37, pay at 3,717 feet, total depth 3,784 feet, flowed 155 bbls. of fluid in three hours, partly acid water.

Lem Peters No. 1 May, C NW SE section 27-22-37 feet, pay topped at 3,537 feet, total depth 3,639 feet, flowed 1,060 bbls. in 24 hours through 2-inch tubing. It had been shot.

Continental Oil Co. No. 3 Jack 20-A, C SE NE section 20-24-37, total depth 3,582 feet, in lime and sand, pay at 3,360 feet, flowed 31 bbls. per hour in a two-hour test, with gas at the rate of 584,000 feet per day.

Texas Co. No. 4 Fristol, NW NE SE section 3-25-37, total depth 3,480 feet, top of pay at 3,265 feet, flowed 197 bbls. in six hours through 2-inch tubing.

Eddy County

In Eddy County Anderson & Prichard made a location for No. 2 Carlson, NW NE SE section 22-25-37, and Yates & Dooley had machine in for a test in C SW NE section 35-18-30.

Repollo Oil Co. completed No. 3-A Parke, NW NW NW section 22-17-30. It flowed 84 bbls. per day naturally, but when acid-treated it flowed 290 bbls. per day from pay topped at 2,990 feet, total depth 3,345 feet. Repollo Oil Co. No. 3-A Kiel, SW SE SW section 7-17-31, made an initial production of 185 bbls. per day from pay at 3,493 feet, total depth 3,575 feet. It produced naturally.

Lea County

Addison Oil Co. No. 2 Knight, C SW NW sec. 27-24-37. Drlg. 3,431 ft.; S.S.O. 3,090 ft.; S.S.G. 3,045 ft.; S.O. 3,423 ft.; cmtg. at 3,203 ft.

Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. T.D. 2,855 ft.; set 8-in. 2,573 ft.

Anderson-Prichard Oil Corp. No. 2 Carlson-Harrison, NW NE SE sec. 22-25-37. Loc.

Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. Drlg. 3,420 ft.

Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-25-37. Drlg. 3,610 ft.

Anderson-Prichard Oil Corp. No. 2 Wells, C SW SE sec. 5-25-37. Drlg. 3,090 ft.; S.G. 2,909 ft.

Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 3,884 ft.; prep. to deepen.

Continental Oil Co. No. 1 State K-29, C SW SW sec. 29-16-37. T.D. 2,876 ft.; fsg.

Continental Oil Co. No. 4-E-17 State, C SW NW sec. 17-22-36. T.D. 3,880 ft.; P.B. 3,850 ft.; reshot at 3,751-3,850 ft.; now C.O.

Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.

Culbertson & Irwin No. 1 Dabbs, NE NE NW sec. 35-25-37. T.D. 3,284 ft.; W.O.C.

Culbertson & Irwin No. 1 Henry, C N½ NW SW sec. 26-25-37. Drlg. 2,378 ft.

Culbertson & Irwin No. 3 Liberty, C N½ NW SW sec. 3-25-37. Drlg. 3,366 ft.; L.

A. R. Eppenauer No. 1 Stuart, NW NE NE sec. 22-25-37. T.D. 3,373 ft.; flwd. 15 B.O.P.H. at 3,321 ft.

J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 3,700 ft.

Great Western Prod. Co. No. 1-C State, C NE SW sec. 7-9-37. Drlg. 4,020 ft.; L.

Gulf Oil Corp. No. 1 Alley, C NE SE sec. 10-23-37. T.D. 3,713 ft.; P.B. 3,688 ft.; S.D.O.

Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; tstg.

Gulf Oil Corp. No. 2-D Kutter, C SE SW sec. 8-19-37. T.D. 4,155 ft.; P.B. 4,100 ft.; shot and C.O.

Gulf Oil Corp. No. 3 Ramsey, C SW SE sec. 35-21-36. W.O.C. 34 ft.

Gulf Oil Corp. No. 4 Stuart, C NW NE sec. 10-25-37. W.O.C. 265 ft.

Humble O. & R. Co. No. 6 Fopeano, C NE NE sec. 35-20-36. Drlg.

Humble O. & R. Co. No. 3 Williams, C SW NW sec. 34-24-37. T.D. 3,532 ft.

Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-37. T.D. 3,029 ft.; tstg.

Magnolia Pet. Co. No. 2 Brunson-Argo, C NE NE sec. 9-22-37. Drlg. 1,326 ft.

Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.

Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. T.D. 4,593 ft.; flwd. 51 B.O. in 1 hr. naturally.

Magnolia Pet. Co. No. 3 State-Bridges, C NE NW sec. 26-17-34. Drlg. 2,220 ft.

Magnolia Pet. Co. No. 6 State-Bridges, C SW NW sec. 23-17-34. T.D. 4,755 ft.; pay 4,618 ft.; shot; C.O.

Magnolia Pet. Co. No. 9 State-Bridges, C SE SW sec. 13-17-34. Drlg. 3,680 ft.; L.

Magnolia Pet. Co. No. 10 State-Bridges, C SE NW sec. 25-17-34. Drlg. 3,206 ft.

Magnolia Pet. Co. No. 11 State-Bridges, C SE NW sec. 25-17-34. Drlg. 3,075 ft.

Magnolia Pet. Co. No. 12 State-Bridges, C SE SE sec. 26-17-34. C.&P.

Maljamar O. & G. Co. No. 9 Baish, C NW NW sec. 21-17-32. Drlg. 3,970 ft.; no shows.

Maljamar O. & G. Co. No. 10 Baish, C SW NW sec. 22-17-32. Drlg. 3,338 ft.

Maljamar O. & G. Co. No. 4 Mitchell, C NE NE sec. 20-17-32. Drlg. 3,870 ft.

Maljamar O. & G. Co. No. 5 Mitchell, C NW NW sec. 19-17-32. Drlg. 3,391 ft.

Jas. A. Mascho No. 2 Cloyd, C SW SW sec. 20-22-33. R.U.S.T.

C. T. McLaughlin No. 1 Polhamus, NE sec. 9-24-37. T.D. 3,672 ft.; S.D.O.

Mid-Continent Pet. Corp. No. 3 Marshall, SW SW SW sec. 12-21-36. Drlg. 1,007 ft.

National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; drlg. 3,710 ft.

Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 18-19-37. Drlg. 3,625 ft.

Ohio Oil Co. No. 1 State-Fleming, NE cor. sec. 2-26-37. T.D. 3,331 ft.; T. pay 3,268 ft.; F. 8 B.O. in 3 hrs. and died; est. 20 B.O. wild.; still testg.

Ohio Oil Co. No. 1 State-McCallister, C SE SW sec. 25-17-34. Drlg. 3,641 ft.

Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; C.O.

Parker Drlg. Co. No. 2 Irwin, C W½ NW SW sec. 35-24s-37. T.D. 3,204 ft.; W.O.C.

Paton Bros. No. 2 Wilkinson, C SE SE sec. 8-18-31. Loc.

Penrose & Rowan No. 1 Christmas, SE cor. sec. 28-22-37. Drlg. 1,000 ft.; shale.

Lem Peters No. 1 T. O. May, C NW NE sec. 34-22s-37. Drlg. 3,625 ft.; S.O.&G. 3,445-50 ft.; cmtg.

Lem Peters No. 2 L. J. May, C W½ SE SE sec. 27-22-37. Drlg. 365 ft.

Phillips Pet. Co. No. 3 Santa Fe, C SW NW sec. 5-18-35. C.&P.

Phillips Pet. Co. No. 6 Santa Fe, C SW SE sec. 21-17-35. T.D. 4,640 ft.; L. at 4,578 ft.; F. and swb. 456 B.O.P.D. after acid.; S.I. 21 hrs. and F. 60 B.O. in 1 hr.; tstg.

Phillips Pet. Co. No. 7 Santa Fe, C SE SW sec. 27-17-35. Drlg. 2,910 ft.

Phillips Pet. Co. No. 8 Santa Fe, C NW NW sec. 5-18-35. Drlg.

Phillips & Pure No. 2 Woolworth, C NE SE sec. 33-24-37. Drlg. 3,061 ft.

Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.

Repollo Oil Co. No. 2 Hair, NW SW NW sec. 9-24-37. T.D. 3,154 ft.; drlg. plug.

Repollo Oil Co. No. 1 State, SE cor. sec. 6-17-34. T.D. 5,016 ft.; P.B. 4,685 ft.; F. 40 B.O. in 12 hrs. through csg.

Repollo Oil Co. No. 2 Turner, SW NE SW sec. 29-21-37. W.O.C. 233 ft.

Repollo Oil Co. No. 5-B Whitten, NW NW NE sec. 4-24-36. T.D. 3,540 ft.; drlg. plug.

Republic Prod. Co. No. 1 State, C NW SW sec. 32-17-35. T.D. 4,100 ft.; drlg. plug.

Republic Prod. Co. No. 2 State, C SW SW sec. 32-17-35. Loc.

Rowan & Nichols No. 1 State, C NE NW sec. 22-10-37. Drlg. 3,620 ft.

Rowan Drlg. Co. No. 2-A Elliott, C NE SW sec. 27-22-37. Drlg. 2,850 ft.

J. M. Rush No. 2 State, NW NW SE sec. 20-20-37. Drk.

J. M. Rush No. 2 Wantz, C NW SW sec. 21-21-37. T.D. 3,240 ft.; W.O.C.

Harry J. Schafer No. 1-A State, C E½ NW NE sec. 26-20-36. T.D. 3,865 ft.; swb. some oil; P.B. 3,845 ft.; S.I.

Shasta Oil Co. No. 2 Woolworth, NE NW NW sec. 28-24-37. T.D. 3,155 ft.; fsg.; gas decreased to 1,000,000 ft.

Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 3,800 ft.

Shell Pet. Corp. No. 2-C State, NE SE NE sec. 24-21-35. Drlg. 3,579 ft.; cmtg.

Shell Pet. Corp. No. 3-A State, C SE NE sec. 31-17-35. Loc.

Shell Pet. Corp. No. 1-D State, C SW SW sec. 31-17-35. Loc.

Shell Pet. Corp. No. 1 Whitten, C S½ SE NE sec. 33-23-36. R.U.R.

Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,620 ft.; tstg.

Skelly Oil Co. No. 7 Coats, C NW SW sec. 3-24-36. Drlg. 3,036 ft.

Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; C.O.

Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,688 ft.

Skelly Oil Co. No. 1-E W. P. Sims, C NW NE sec. 10-23-37. T. D. 3,625 ft.; flwd. 425 bbls. in 24 hrs.

Stanolind O. & G. Co. No. 3-B Farnsworth, C E½ NE SW sec. 7-26-37. Drlg. 2,780 ft.

Stanolind O. & G. Co. No. 3-A Hill, SE SE NW sec. 6-21-37. Drlg. 2,895 ft.

Stanolind O. & G. Co. No. 5-B Myers, C NE SW sec. 9-24-37. T.D. 3,530 ft.; est. 16,000,000 ft. gas treated; now swabbing to test.

Stanolind Oil Co. of Texas No. 1 State, C SW NW sec. 32-17-35. Drlg. 3,038 ft.; S.S.G. 3,023 ft.

W. H. Street No. 2 Farrell, C NW SE sec. 22-22s-37. T.D. 3,689 ft.; S.G. 3,460 ft.; S.O. 3,535 ft.; to test.

Texas Co. No. 3 Black, C NW NE sec. 21-24-37. Drlg. 3,438 ft.; est. 1,000,000 ft. gas at 3,366 ft.; S.O. 3,420 ft.

Texas Co. No. 2 Cagle, SW NE NW sec. 9-26s-37. W.O.C. 130 ft.

Texas Co. No. 1 Corbin, C NW SW sec. 19-18-33. T.D. 5,117 ft.; P.B. 4,259 ft.; shot; C.O.; swb. 129 B.O. in 12 hrs.

Texas Co. No. 3 J. S. Lea, SW NE SW sec. 14-20-34. Drlg. 635 ft.

Texas Co. No. 1-N State, C SW SW sec. 30-17-35. C.O. to 4,747 ft.; P.B. 4,700 ft.; S.D.O.

Texas Co. No. 2-D State, C SW NW sec. 27-17-34. Drlg. wtr. well; drlg. 4,005 ft.

Texas Co. No. 1-Q State, C SE SE sec. 25-17-34. Drlg. 2,807 ft.

Texas Co. No. 2-Q State, C SW SE sec. 25-17-34. Drlg. 4,121 ft., lime.

Twin Drlg. Co. No. 1 Corrigan, C SW NE sec. 4-22-37. Drlg. 3,280 ft.

Twin Oil No. 1 Joyce-Pruitt, C SE SE sec. 31-21-37. R.U.R.

Two States Oil Co. No. 1-B Cole, O.W.D.D., C NE NE sec. 16-22-37. O.T.D. 1,141 ft.; drlg. 3,507 ft.

Two States Oil Co. No. 2 Etcheverry, NE NW SE sec. 10-20-36. T.D. 3,886 ft.; P.B. 3,876 ft.

Two States Oil Co. No. 1 Hill, C SW SW sec. 31-20-38. T.D. 253 ft.; S.D.R.

Weier Drlg. Co. et al No. 1 Woolworth, NE NE SW sec. 28-24-17. Drlg. by tools at 2,725 ft.

Sam Weiner No. 1 Smith, NE cor. sec. 4-25-37. T.D. 3,055 ft.; blew out; est. 20,000,000 ft. gas; fsg. tools.

Weiner No. 1 Parcell, C SW NE sec. 8-23-28. T.D. 4,498 ft.; S.D.O.

Western Gas Co. No. 1 Matkins, C SE SE sec. 15-23-26. T.D. 3,792 ft.; reaming.

Eddy County

Anderson & Prichard No. 2 Carlson, NW NE SE sec. 22-25-37. Loc.

F. E. Baker No. 1 Eddy, NE sec. 12-22-37. T.D. 2,410 ft.; S.D.O.; W.I.H.

Danciger O. & R. Co. No. 4-A Turner, C SW SW sec. 18-17-31. T.D. 3,522 ft.; S.I.

Danciger O. & R. Co. No. 1-B Turner, CEL NE SE sec. 17-17-31. Loc.

D. & B. Oil Co. No. 3 Jenkins, NE NE NW sec. 20-17-30. Drlg. 3,215 ft.; flow est. 25 B.O.P.D. while drlg.
English & Harmon No. 1 Dougherty, NE NE SW sec. 3-17-27. T.D. 1,050 ft.; fsg.
Etz Bros. No. 5 State, SE NE SE sec. 16-17-30. R.U.M.
Finley & Cherry No. 1 Buchley, C NW NW sec. 28-16-31. Wildcat; T.D. 3,750 ft.; S.D.
Flint Prod. Co. No. 1-B State, SE sec. 20-17-30. Drlg. 3,830 ft.
C. J. Frederick No. 1 Reed, C NE SW sec. 28-24-28. T.D. 2,770 ft.; S.D.O.
F. W. & Y. Oil Co. No. 8-A Gissler, NE NW NE sec. 23-17-30. T.D. 3,474 ft.; swbg. 50 B.O.P.D. through csg.
F. W. & Y. Oil Co. No. 9-A Gissler, C SE NE sec 14-17-30. T.D. 3,500 ft.; reshot at 3,360-3,400 ft.; rng. tbg.; will not flow.
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fsg.
Grayburg Oil Co. No. 4 Keely, SE SW NE sec. 24-17-9. T.D. 3,588 ft.; to test.
Grayburg Oil Co. No. 12 Burch, NW NW SE sec. 19-17-30. R.U. and S.D.
H. A. Hartwell No. 1 Vandagrift, NE NE SE sec. 8-18-27. T.D. 2,085 ft.; S.D.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 1,980 ft.; S.D.O.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. T.D. 1,917 ft.; S.D.R.
F. G. Keyes No. 2 State, C SE NE sec. 9-17-28. Drlg 376 ft.
Paul Moran No. 1 Crawford & Smith, NW NW SW sec. 24-24-36. T.D. 2,005 ft.; S.D.O.
Nash, Windfohr & Brown No. 5-A Stevens, C SE SW sec. 13-17-30. Drlg. 1,065 ft.
Paton Bros. No. 2 Ginsberg, C SE SE sec. 8-18-31. T.D. 3,172 ft. sd.; est. 75-100 B.O.P.D.; S.I. for storage.
Premier Pet. Co. No. 1-B Maddren, NW SW SW sec. 27-17-30. Drlg. 2,460 ft.
Repollo Oil Co. No. 3-C McIntyre, NW SE NE sec. 20-17-30. Drlg. 2,910 ft., lime; S.G. at 2,880 ft.
Repollo Oil Co. No. 4-A Parke, NW SE NW sec. 22-17-30. T.D. 2,980 ft., lime; W.O.C.
Rudco O. & G. Co. No. 5 Yates, C NE NW sec. 33-18-28. Drlg. 1,140 ft.
Paul Sarget No. 1 State, NE sec. 16-17-31. T.D. 3,749 ft.; P.B. 3,745 ft.; tstg.
W. A. Snyder No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. T.D. 3,330 ft.; S.D.O.
V. P. Welch No. 1 Lewis, SE SW SE sec. 5-16-28. Drlg. 1,610 ft.
Western Drlg. Co. No. 2-A Western, SE SE NW sec. 23-17-29. Loc.
Yates-Dooley No. 1 Creek, C SW NE sec. 35-18-30. Mach.

Chaves County

E. J. Fisher No. 1 Etz Permit, NE sec. 23-7s-26. Drlg. 1,910 ft., lime.
E. J. Fisher No. 1 Foster, C NW NW sec. 7-15-26. R.U.R.
Grastorf & Caudill No. 1 Smith, C NE NE sec. 1-4s-29. Wildcat; new hole; T.D. 3,335 ft.; rng. csg.
Interstate Minerals, Inc., No. 1 Dunigan, NW cor. sec. 15-15-30. T.D. 595 ft.; fsg.
J. & L. Drlg. Co. No. 2 Hurd, SW sec. 11-11-28. T.D. 1,000 ft.; S.D.O.

Colfax County

Winston Marks No. 1 State, SE NW sec. 5-25-24. S.D. for pipe at 1,100 ft.

De Baca County

Land Owners Oil Co. No. 1 McAdoo, SW cor. sec. 16-1s-7e. O.W.; prep. to deepen from 5,850 ft.; S.D.
James D. Ward No. 1 Summers, NW NE SW sec. 17-4n-20. T.D. 260 ft.; S.D.
N. F. Woods No. 1 Jones, C NE SW sec. 17-4n-20. T.D. 25 ft.; S.D.

Dona Ana County

Jules C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dvsart No. 1 Govt., NE sec. 14-14-10w. T.D. 1,390 ft.; fsg.

Otero County

Fred Turner, Jr., No. 1 Ella Everett, C SE SE sec. 34-22-13. T.D. 3,702 ft.; S.D.O.
Fred Turner, Jr., No. 1 H. V. Everett, SE SE sec. 28-22-13. S.D. 3,710 ft.

Quay County

H. H. McGee No. 1 Chapman, sec. 9-9-35e. Drlg. 1,000 ft.

Roosevelt County

C. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. T.D. 980 ft.; S.D.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW sec. 10-11n-4e. T.D. 3,750 ft.; M.I. 6⅝-in. and 3-in. D.P.; to resume.

McKinley County

Claude Walker No. 7 fee, SW SW SE sec. 20-20n-9w. Drlg. 250 ft.

San Juan County

Goodrun & Vincent No. 2 Goodrun, SE SW NE sec. 23-29n-11w. T.D. 30 ft.; W.O. csg.
Continental Oil Co. No. 76 Rattlesnake, SW NE SE sec. 2-29n-19w. Drlg. 801 ft.
Al Greer No. 2 fee, SW SE SW sec. 10-30-11w. S.D. 660 ft. for 10-in.
Frank Lischke No. 1 Abreo, SW SW sec. 27-30n-11w. T.D. 1,460 ft.; S.W.; P.B. to 1,140 ft. to test S.G.
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. Drlg. 1,900 ft.

Socorro County

Central New Mexico Oil Co. No. 1 Belen Gr., SE NW sec. 16-3n-1e. T.D. 2,965 ft.; (C.D.); C.O.

Torrance County

Chief O. & G. Co. No. 1 Pace, SE sec. 12-6n-7e. Drlg 2,045 ft.; carrying 5⅛-in. at 2,017 ft.; S. carbon diox. and G. at 2,022-27 ft. and 2,036-42 ft.; est. 500,000 ft.
Woolston Bros. No. 1 Garland, NE SE NE sec. 32-7n-7e. R.U.
Estancia Valley Carbon-Dioxide Dev. Co. No. 1 Crawford, SE NE NE sec. 32-7n-7e. Drlg. 900 ft.; 10¾-in. at 431 ft.

Valencia County

Old Spanish Grants, Inc., No. 1 San Clemente, C SE SW sec. 23-7n-1e. R.U.R.
C. A. Grober et al No. 1 Fuqua, NE NE sec. 19-5n-3e. T.D. 900 ft.; R.U.R.

COLORADO

Archuleta County

Boone Dev. Co. No. 1 Newton, SE NW SE sec. 18-33n-1e. Drlg. Mancos sh. 230 ft.
Pagosa Oil & Dev. Co. No. 1 Macht, C sec. 32-36-1w. Drlg. below 1,135 ft.

Fremont County

Stanley Thomas No. 1 Rickwalt, SE SE sec. 2-19s-70w. Drlg. 280 ft.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE sec. 36-7s-88w. Drlg. 1,000 ft. after lowering 8¼-in. from 721 ft. for better csg. seat; S.O.&G. in sh.

Grand County

Interstate O. & R. Co. No. 1 Hinman, NE SE NW sec. 11-2n-81w. S.D. 3,920 ft.; will D.D. to Morrison.

Huerfano County

J. G. Tomkins & Sons No. 1 Pressey, NE NE NE section 10-29s-69w, Oak View district, had a good show of gas in an unidentified horizon at 370 feet. This was followed by a good show of live green oil of high gravity at about 410 feet. Total depth of hole is 411 feet. Just what the show amounts to is hard to determine as the operator is drilling with a small bit on a string of ordinary 1½-inch pipe, the size of the hole not exceeding 2 inches in diameter. The oil is mixed with the drilling muck. The water in the hole, according to the driller, was put in to hold down the gas pressure. The operator is prospecting the area and if results are sufficiently encouraging he plans to move in standard rig and drill a test. The location is less than half a mile from a well drilled by S. W. Pressey to 3,685 feet, at which depth, according to Pressey, it was shut in as a gas well.

J. G. Tomkins & Sons No. 1 Pressey, NE NE NE sec. 10-29s-69w. Cg. 410 ft.; S.O.
S. W. Pressey No. 2 Alamo, C SW SE sec. 3-27s-68w. Drlg. 1,320 ft.

LaPlata County

N. Spatter No. 1-X Bryce, SE SW SW sec. 31-33n-9w Drlg. below 700 ft.

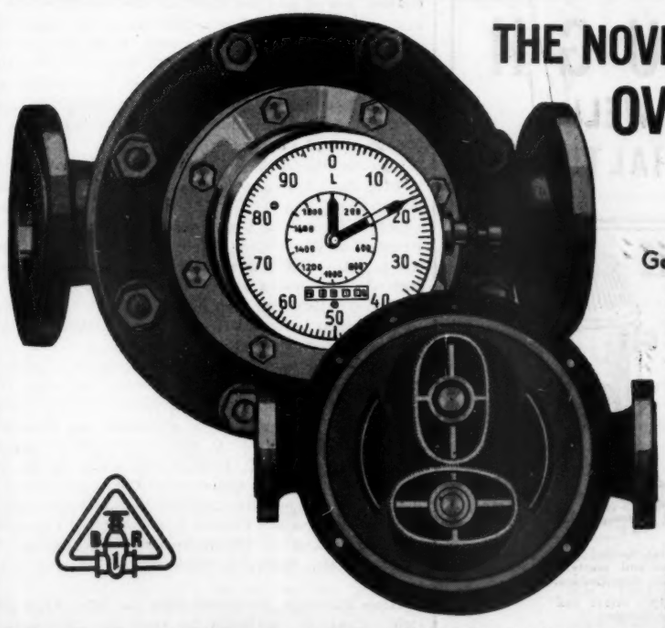
Mesa County

Continental Oil Co. et al No. 1 Miller, SW SW NW sec. 36-8s-91w. Drlg. 3,787 ft.

Moffat County

The first operation in the Iles field this year has

MASTER 1244 SS 185,000 LBS.
SUPER SERVICE 1030 SS . . 66,000 LBS. 1240 SS . 140,000 LBS.
BALDWIN OIL FIELD CHAIN
FACTORY REPRESENTATIVE: GEO. J. FIX, DALLAS, TEXAS
FULL FLEX SS #3 . . 43,000 LBS. SS #4 . 100,000 LBS.
Sold in all Oil Fields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been started in Stanolind Oil & Gas Co. No. 3-SD Shaw, NW NE NE section 27-4n-92w, an old well in the Upper Sundance which is being deepened to the basal Sundance. This well was completed in 1928 at 3,262 feet, 27 feetin the Sundance, for 700 bbls. the first 24 hours.

Stanolind O. & G. Co. No. 3-SD Shaw, NW NE NE sec. 27-4n-92w. Cg. below 3,262 ft.
Morapas Pet. Corp. No. 1 Coles, SW SW SE sec. 1-3n-92w. T.D. 2,690 ft.; C.O. to bttm.; will cmt. caves.
C. R. Privett No. 1 Sutton, NE NE SW sec. 1-5n-96w. Drlg. 400 ft.; will lower 12½-in. for form. S.O.

Montezuma County

McElmo Oil Co. No. 1 West, in the McElmo Canon district, encountered salt beds at 4,350 feet and is held up in salt at 4,588 feet with a fishing job. The well, which has been drilling intermittently since 1932, is less than 3 miles southeast of the test drilled by Midwest Oil Co. in 1921. The old Midwest well went to 4,588 feet where it was abandoned. It had several good shows of oil and 4,000,000 feet of gas in one horizon, but it did not cut any salt. It is between the No. 1 West and the wells drilled across the line in Utah which showed several thousand feet of salt.

McElmo Oil Co. No. 1 West, NE NW NW sec. 31-36s-17w. T.D. 4,588 ft.; fsg.

Park County

South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75w. Drlg. 5,850 ft.

Prowers County

Continental Oil Co. No. 1 Ruby, C NE NW sec. 31-21s-44w. T.D. 4,070 ft.; fsg.; sulfur wtr. in L. near base K.C. form. at 3,524 ft.; top Shawnee(?) at 2,990 ft.

Pueblo County

Eden O. & G. Co. No. 1 Horse Creek, SW SE sec. 29-19s-64w. Some mat. on loc.
C. E. Puckett No. 1 Barber, NW sec. 35-21s-66w. S.D. 475 ft.; cmtg. cellar.

Routt County

Craig & Moore No. 1 Erwin, C SW NE sec. 33-7s-85w. T.D. 910 ft.; strtng. crkd. hole.

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW sec. 16-1n-91w. Drlg. 2,245 ft. after installing new cable.

WYOMING

Albany County

Murphy Oil Co. No. 12 Holst, SE NW NE sec. 13-17n-77w. T.D. 3,455 ft.; tstg.
Murphy Oil Co. No. 13 Holst, SE SW NE sec. 13-17n-77w. Bldg. rig.

Big Horn County

Prescott & Mileski No. 1 Govt., NE NW SW sec. 15-1n-93w. Drlg. 536 ft.
Clifford S. Johnson No. 1 Johnson, CEL NW NW sec. 24-51n-93w. Rig; W.O. engine.
Joan Oil Co. No. 1 Howell, NE NW NE sec. 32-55n-97w. T.D. 2,420 ft.; cmtd. 10-in. on bttm.; W.O.C.

Carbon County

An important gas discovery has been made on the Oil Springs structure in Cunningham Oil Co., Inc., No. 1 Union Pacific-Cronberg, SE NE SE section 3-23n-79w. At 2,315 feet it showed for an aggregate of 27,000,000 feet of gas per day from the Sundance, on a drill stem test. The 7-inch will be set at 2,232 feet and the well completed as a gasser. A test in the first bench of the Sundance at 2,225-67 feet showed 3,880,000 feet of gas. Another at 2,267-87 feet showed 9,210,000 feet of gas, and the third at 2,287-2,315 feet in the basal Sundance increased the aggregate to 27,000,000 feet of gas.

The location is 5 miles north of the nearest gas well in the Allen Lake field and 12 miles north of the Big Medicine Bow field. Oil Springs is a narrow faulted anticline formed in Upper Cretaceous beds with the Frontier at the surface. In 1919, Ohio Oil Co. drilled No. 1 Baker, NW NW SW section 2-23n-79w, to 1,498 feet where it had a show of gas with water in the Muddy. In 1936 the well was deepened 1 foot and then plugged back to 560 feet and completed in the Frontier for 60,000 feet of gas per day.

The Cunningham company holds leases on all Union Pacific Railroad land on the structure and Ohio Oil Co. has the federal, state and fee land. C. D. Cunningham, of Greeley, Colo., is president. The directors include H. W. Farr, W. D. Farr, and Fred M. Moore, of Greeley, and F. C. Cramer and C. B. Means, of Denver. Mr. Moore is president of Consumers Oil Co., the largest cooperative gasoline marketing company in Colorado, and Mr. Cramer is president of Powerine Co., the largest of the independent distributors in Colorado. Mr. Means is treasurer of the Powerine company.

This discovery, connected with the Allen Lake gas field, which is controlled by Ohio Oil Co., renews speculation as to whether this gas will be piped to Cheyenne which at present is being supplied by a subsidiary of Public Service Co. of Colorado (Cities Service). The Cheyenne gas comes from Colorado and Texas and a Wyoming law provides for the taking of a certain per cent of gas for domestic use from wells in that state where a supply is available.

Cunningham Oil Co., Inc., No. 1 Union Pacific-Cronberg, SE NE SE sec. 3-23n-79w. T.D. 2,315 ft.; prep. to run csg. and comp.
Producers Oil Co. No. 1 Lake Valley, 200 ft. S of CNL sec. 14-20n-88w. Res. drlg. 1,755 ft.; 12½-in. at 1,588 ft.
Ohio Oil Co. No. 3 Hazlett Est., NE SW SE sec. 34-23n-79w. Drlg. 3,691 ft.; out of r.b. at 3,470 ft.
Ohio Oil Co.-California Co. No. 3 State-Griffin, C SW NW sec. 36-21n-79w. T.D. 5,711 ft.; wtr. in Sundance at 5,694-5,711 ft.; will P.B. and tst. S.O. in Dakota.

Converse County

Wyshawn Oil Co. No. 2 Lindley, C SW SW sec. 35-32n-69w. Drlg. 300 ft.
Sand Creek Oil Co. No. 1 Probesh, NW SW SE sec. 29-32n-69w. T.D. 565 ft.; lowering 8¼-in. for W.S.O.
Fred Bunker No. 1 Pestal, SE NE NE sec. 32-32n-69w. Drlg. 200 ft.; 10-in. at 170 ft.
New Era Fuel Co. No. 2 Mary Gasper, CNL NW SW sec. 25-32n-69w. Est. 50 B.P.D. from sd. in base White River at 655-70 ft.; little wtr.
Wyshawn Oil Co. No. 1 Lindley, NW SE SE sec. 34-32n-69w. Drlg. 1,425 ft.

Fremont County

Tropic Oil Co. No. 1 Govt., C SE SW sec. 34-27n-90w. Drlg. 3,368 ft.
Consolidated Oil Properties No. 3 Ewart, C SW SE sec. 16-1n-1w. Drlg. below 820 ft.
Sinclair-Wyoming Oil Co. No. 2-B Muskrat, NW NW NE sec. 4-33-92w. T.D. 5,320 ft.; cmtd. 5⅛-in. at 5,319 ft.; will test gas in 1 ft. of sd. between csg. and bttm. before perf.
Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. S.D. 2,245 ft. for 7-in.

Hot Springs County

Italo Petroleum Corp. No. 1 Phebus-Government, NW NW SW section 11-44n-98w, which marked an extension of three-fourths of a mile to the northwest of the Hamilton dome last January when completed in the Tensleep at 3,246 feet for 100 bbls. per day, was deepened to 3,335 feet and recompleted. After acidizing it averaged 400 bbls. per day on a 72-hour test.

Italo Pet. Co. No. 1 Skelton-Govt., SE SW NE sec. 13-44n-98w. Res. at 300 ft.
J. W. Bales No. 1 Govt., SE SW sec. 28-43n-93w. T.D. 1,082 ft.; P.B. to 1,015 ft.; tstg.
D. D. Gibson No. 26 fee, SW NW SE sec. 35-43n-93w. Drlg. 147 ft.
California Expln. Co. No. 1 Govt., NE SE NE sec. 12-44n-97w. Drlg. 3,907 ft. in new 7⅞-in. hole.

Lincoln County

H. C. Harris et al No. 1 Govt., SE NW NW sec. 23-21n-117w. Drlg. 500 ft.

Natrona County

Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE SW sec. 26-40n-79w. Drlg. sh. 2,300 ft.
Western Producers, Inc., No. 1 Govt., NW SW SE sec. 5-39n-78w. S.D. 1,165 ft.
Stanolind O. & G. Co. No. 8 T.P.-Midwest Oil, C NW SW sec. 35-40n-79w. Loc.; W.O. compl. No. 26.
Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE NW sec. 35-40n-79w. T.D. 4,002 ft.; cmtd. 6⅝-in. at 3,996 ft.; tstg.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. T.D. 8,019 ft.; cmtd. 6⅝-in. at 7,978 ft.; pmpg. av. 10 B.P.H. without lowering oil below 5,600 ft.

Niobrara County

A. B. Cobb has begun the erection of an 80,000-bbl. storage tank on his lease on the southwest side of Lance Creek. It is reported he will produce his wells at capacity and store the surplus for the present.

C. L. Price No. 2 Lamb, C SE SW sec. 12-35n-65w. Drlg. below 2,700 ft.
Minnelusa Oil Co. No. 2 H. & M., NW NE NE sec. 8-35n-65w. Cg. in Sundance; top 4,070 ft.
Hewitt Bros. and Manning No. 1 Pecklow, SE SE SE sec. 1-35n-66w. S.D.O. 5,677 ft.
H. D. Moore et al No. 1 Beregren, NW sec. 23-35n-63w. Drlg. in Sundance 937 ft.; top Morrison 587 ft.
Continental Oil Co. No. 4 Apex-2, NW NE SE sec. 34-36n-65w. Drlg. r.b. 4,228 ft.; top Sundance 3,998 ft.; top r.b. 4,225 ft.; wtr. in Sundance.

Park County

Resolute Oil Co. No. 2 State, C SW SW sec. 16-57n-101w. Drlg. 3,050 ft.
Paul Stock No. 1 Govt., SE SE NE sec. 20-53n-101w. Drlg. r.b. 4,650 ft.

Sublet County

Texas Co. No. 3-H, NE NW NW sec. 27-27n-113w. Drlg. 523 ft.
Yellowstone Oil Co. No. 1 Henry Budd, C SE SE sec 6-30n-112w. Drlg. 100 ft.
Wyo. Pet. Corp. No. 1 Chas. Budd, C NE NE sec. 10-29n-113w. S.D. 250 ft.
Progressive Oil Co. No. 1 Haddenham, C NE SE sec. 21-28n-113w. Drlg. 817 ft.

Sweetwater County

Sinclair-Wyoming Oil Co. No. 33-A, SE SW SW sec. 11-26n-90w. T.D. 2,153 ft.; cmtd. 8¼-in. at 2,129 ft.; tstg.

Washakie County

Wyoming O. & R. Co. No. 10-B Brome ,C SE NE sec. 6-47n-90w. Drlg. 1,632 ft.

Weston County

Gose Oil Synd. No. 1, NE NE NE sec. 28-47n-63w. C.O. after landing 4¾-in. at 4,900 ft.
Osage Trust Co. No. 1, SE NW NE sec. 22-46n-64w. Set 500 ft. csg. through Lakota and res. to go to the Sundance.

Howland & Seneker, NE NW SW sec. 13-46n-64w. Rng. 8¼-in. through Greenhorn.
West Osage Oil Co. No. 3, SW SE NE sec. 15-46n-64w W.O. csg.
Updike Bros. No. 6, CSL NE SW sec. 25-46n-64w. Cmtd. 8¼-in. through Greenhorn; W.O.C.
John Brorphy No. 1 George, SW SE NW sec. 26-48n-64w. T.D. 2,080 ft.; W.O. csg.

MONTANA

Carbon County

Henderson Prod. Co. No. 1-H-11 Elk 11, SE SE NW sec. 35-9s-23e. T.D. 1,626 ft.; prep. to res.
R. C. Tarrant No. 1, 500 ft. W of C sec. 3-6s-18e. T.D. 2,205 ft.; drlg. through fault; probably abd. and drill another.
R. C. Tarrant No. 2 Heare, NW SE NW sec. 14-6s-19e. S.D. 1,780 ft.; chg. to rotary.
Sha-Wa Pet. Co. No. 1 Govt., SW NW NE sec. 35-9s-23e. T.D. 3,124 ft.; perf. csg. at 2,985 ft.
Miracle Oil Co. No. 2 Govt., CWL NE SE sec. 3-6s-23e. Drlg. 2,391 ft.

Dawson County

Frank C. Hughes No. 1 fee, NW NE SE sec. 5-14n-55w. Drlg. 1,080 ft.

Fallon County

Montana-Dakota Utilities Co. No. 35 Unit 7, C SW sec. 9-6n-60e. Drlg. 439 ft.; (loc. cor.).

Fergus County

Baughman & Singley No. 1 Skaggs, C NW SW sec. 7-15n-20e. Drlg. 810 ft.

Glacier County

Glacier Prod. Co. No. 1 Thomas Unit, 1,980 ft. from S line, 2,640 ft. from W line, sec. 14-35n-5w. Spdg.
Glacier Prod. Co. No. 3 Bonnet, CSL NW SW sec. 4-32n-5w. Drlg. 500 ft.
Texas Co. No. 9 Unit 6, C NW NW sec. 9-32n-5w. Drlg. 1,390 ft.; Colo. 650 ft.; 10¾-in. at 682 ft.
Glacier Prod. Co. No. 4 Coburn, NW SE SW sec. 5-33n-5w. Drlg. 1,690 ft.
A. B. Cobb No. 1 Reagan-Jackson, SW SE NW sec. 5-32n-5w. Drlg. 2,240 ft.
Nadeau Bros. No. 5 Farmers State Bank, CEL SE NE sec. 17-33-5w. T.D. 2,820 ft.; cmtd. cave, 100 sacks.

Petroleum County

O. B. Canfield No. 2 Govt., SE NE NE sec. 21-17n-24e. Drlg. 779 ft.

Pondera County

Jones-Chambers No. 1 Erickson, SW SE SW sec. 3-27n-4w. Res.; R.U.

Stillwater County

Indian Terr. Ill. Oil Co. No. 2 Hepp, NW NW NW sec. 25-1n-21e. Drlg. 4,222 ft.

Teton County

Gulf State Oil-Zodiac Oil Co. No. 1 Coffee-Wallenstein, SW SW SW sec. 5-27n-5w. Spdg.

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Toole County

G. H. Lund No. 1 Dahlen, C SE NW section 35-35n-4w, a test between the Kevin-Sunburst and Cut Bank fields, is showing for a producer. It entered the contact at 2,056 feet and was drilled 1 foot to 2,057 feet. Oil rose 300 feet in the hole. It will be acidized before testing. If results from acidization are normal, it will make a good well. The location is due west of the town of Kevin and 3 to 5 miles east of the Eagle sandstone escarpment on the west side of the Kevin-Sunburst field and about 8 miles east of the nearest gas well in Cut Bank.

Agen & Goeddertz No. 1 Goeddertz, SE SW SW section 23-35n-3w, is pumping 4 bbls. of oil and 30 bbls. of water per day from the contact at 1,722-24 feet after acidizing with 1,000 gallons.

Chab Oil Co. No. 2 Govt., NW NE NW sec. 12-35n-3w. Drlg. 560 ft.
A. E. Crumley & Son No. 13 Fryberger, CNL NW SE sec. 24-35n-3w. Drlg. 750 ft.
Big West Oil Co. No. 2 Engle, SE SW SW sec. 1-35n-3w. T.D. 1,720 ft.; rng. 5½-in.
Henry Vander Pas No. 2 Ward, SE SW NW sec. 28-35n-3w. T.D. 1,711 ft.; contact 1,706 ft.; 700 ft. of oil.
G. H. Lund No. 1 Dahlen, C SE NW sec. 35-35n-4w. T.D. 2,057 ft.; tstg.
Montana Gas Corp. No. 2 Clark, C SE SW sec. 24-37n-1w. T.D. 2,430 ft. in Madison; drlg. up tbg.; wtr. sd. 2,400-21 ft.
Casper T. Oien No. 8 Engermoen, SW NE SW sec. 11-35n-2w. T.D. 1,630 ft.; contact 1,610 ft.; S.O.; will acd.
V. F. Dahl No. 1 Kimball, SW SE SE sec. 1-35n-3w. T.D. 1,486 ft.; cmtd. 7-in.; W.O.C.
Big West Oil Co. No. 8 Gunderson, CNL NE NW sec. 19-35n-2w. T.D. 1,595 ft.; contact 1,590 ft.; acd. 1,000 gal.; pmpd. 10 B.P.D.; acd. again.
O. A. Nepstad No. 2 Haugen, NW NW NE sec. 11-35n-3w. Skd. rig; hole lost.
Pfabe & Engleking No. 2 Hurley, NE NE NW sec. 8-34n-2w. Loc.
H. C. Morton No. 8 Morton, C SW NW sec. 24-34-2w. Drlg. 650 ft.
Chas. Grant et al No. 1 Anderson, SE NE NE sec. 26-35n-4w. S.D. 2,109 ft.
West Kevin Community Lease, Inc., No. 1 McClary, SW NE NW sec. 3-34n-4w. T.D. 2,160 ft.; R.U. to pmp. on beam.

Yellowstone County

Broadview Dome Oil Co. No. 1 Stallinberger, NE NE SW sec. 18-3n-23e. S.D. 4,565 ft.; prep. to res.
Riverton Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. Drlg. 1,814 ft.

UTAH

Daggett County

Mountain Fuel Supply Co. No. 3-B Murphy, NW NW SW sec. 23-3n-24e. T.D. 6,035 ft.; cmtd. 6⅝-in. at 5,918 ft.; W.O.C.

Grand County

Columbia Crude Corp. No. 1 Rath, NW SW SE section 12-25s-20e, Seven Lake district, was unable to recover lost tools at 3,992 feet and is plugging to abandon. It started in the Rico and topped the Hermosa (Upper Pennsylvanian) at 134 feet. It went out of that formation and into the Paradox at 1,865 feet. It had several shows of oil, the best at 2,085-2,134 feet in hard limestone.

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. T.D. 6,715 ft.
Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. T.D. 1,600 ft.; rng. 10-in. to 1,397 ft.
Crescent Eagle Oil Co. No. 1 Brendel, SW SE sec. 4-22s-19e. Drlg. 3,948 ft.

Summit County

Mountain Fuel Supply Co. No. 1 Wilde, NE SE SE sec. 9-2n-5e. T.D. 474 ft.; cmtd. 13⅜-in. at 424 ft.
Longwell Pet. Co. No. 1, SE SW SE sec. 35-3n-5e. T.D. 2,876 ft.; fsg.; H.F.W.

NEBRASKA

Keith County

Twentieth Century Oil Co. No. 1 Stuken, C NW NW sec. 21-14n-37w. Drlg. sh. 1,200 ft.

Sioux County

Tentative location for Felmont Oil Corp. test on the Sanford structure is reported to be C SW NE section 21-27n-55w.

Union Oil Co. of Calif. No. 1 Agate-15, NW SE SE sec. 15-28n-55w. Cg. in salt 6,391 ft.

NORTH DAKOTA

Williams County

California Co. No. 1 Kamp, C NW NE sec. 3-154n-96w. Drlg. below 8,627 ft.

British American Moves Crude From Montana Storage

COUTTS, Alberta.—The British American Oil Co. has connected the pipe line between its loading rack here and the line from the Montana fields to move the last of its Montana crude in storage. Following the crude movement, the tanks will be prepared for removal to the new refinery at East Calgary.

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July Demand Estimate Above June, But Under July, 1937

The daily average supply of domestic crude oil estimated by the Bureau of Mines to meet the market demand in July, 1938, is 3,398,100 bbls. This is 64,800 bbls. higher than the estimate for June, 173,500 bbls. (3 per cent) less than the actual daily production for July, 1937, and 5 per cent less than the demand for domestic crude for that month.

Daily average crude oil production and runs to stills during the four weeks, May 7 to June 4, averaged about 3,200,000 and 3,170,000 bbls., respectively. During this period refinable stocks declined 7,482,000 bbls., 87,000 in foreign stocks and 7,395,000 bbls. in domestic grades. The addition of this to production gives 3,465,000 bbls. as the apparent daily average demand. The excess over the May estimate may be attributed to runs to stills of about 50,000 bbls. daily greater than forecast, to unexpectedly large crude exports, transfers, losses, and to a probable increase in stocks of heavy crude in California.

Motor Fuel

Domestic demand: The estimate for domestic motor-fuel demand for July is 49,930,000 bbls., or 1.5 per cent lower than the actual demand for July, 1937.

Stocks: Stocks of finished and unfinished gasoline amounted to 90,059,000 bbls. on April 30. According to the American Petroleum Institute, these stocks declined 3,500,000 bbls. during May, to approximately 86,500,000 bbls. as of May 31. The bureau estimates finished gasoline stocks will decline 6,600,000 bbls. during July.

Gasoline production: Benzol and "direct" sales and losses of natural gasoline have been estimated as 900,000 bbls., making the estimated refinery production of gasoline 46,430,000 bbls. This is distributed as follows (thousands of barrels): East Coast, 6,510; Appalachian, 1,610; Indiana-Illinois, 8,310; Oklahoma, 2,250; Kansas-Missouri, 2,510; Inland Texas, 3,740; Texas Gulf Coast, 11,830; Louisiana Gulf Coast, 1,450; North Louisiana-Arkansas, 960; Rocky Mountain, 1,150; California, 6,110.

Crude Petroleum

Runs to stills: During the first four months of 1938 natural gasoline blended at refineries constituted 7.0 per cent of the total refinery production of gasoline, compared with 6.2 per cent for the same period in 1937. Moreover, the proportion of natural gasoline during the summer of 1937 was distinctly higher than that for 1936, indicating an upward trend in refinery utilization. The bureau is therefore estimating the proportion of natural gasoline for July as 7.0 per cent, compared with 6.2 per cent in July, 1937. On refinery production this amounts to 3,250,000 bbls.

The yield of straightrun and cracked gasoline is estimated as 44 per cent, compared with actual yield of 43.22 per cent in July, 1937, and 44.56 per cent in July, 1936. The application of the current yield to the estimated straightrun and cracked gasoline production of 43,180,000 bbls. gives refinery crude-oil requirements as 98,140,000 bbls., or 3,165,800 bbls. daily.

Foreign crude runs: Foreign crude runs to stills are estimated at 2,400,000 bbls., 200,000 bbls. more than the June estimate.

Exports, fuel, and losses: The estimate for crude oil exports has been increased 1,100,000 bbls. over the June estimate to 7,100,000 bbls.

Crude oil demand by states: The breakdown of the total estimated daily demand for domestic crude oil of 3,398,100 bbls. gives the following market demand by states of origin. As demand may be supplied either from stocks or from new production, contemplated withdrawals from crude oil stocks must be deducted from the estimate to determine the new crude to be produced.

TABLE 1—ESTIMATED DAILY AVERAGE CRUDE OIL DEMAND BY STATES

(As no changes in crude oil stocks are involved in these estimates, they represent demand rather than production)

State—	Forecast— July, 1938	Forecast— June, 1938	Actual production April, 1938
Texas	1,360,300	1,329,300	1,350,500
California	642,300	650,000	721,600
Oklahoma	518,400	508,300	504,600
Louisiana	260,600	250,000	257,300
Kansas	172,300	172,300	170,100
New Mexico	112,900	108,300	97,500
Michigan	56,400	54,000	55,300
Wyoming	55,500	49,700	48,900
Pennsylvania	52,800	53,400	49,900
Arkansas	51,000	48,300	52,500
Illinois	45,500	41,700	46,300
New York	15,000	14,700	14,300
Kentucky	14,500	14,000	14,400
Montana	13,500	12,700	13,700
West Virginia	10,000	10,500	10,600
Ohio	9,700	8,800	9,100
Colorado	5,200	5,000	4,400
Indiana	2,200	2,300	2,400
Total	3,398,100	3,333,300	3,423,400

Gulf Coast Fields

(Continued from Page 80)

tention was made by Texas Co. for No. 1 M. W. Jones, approximately 1 mile southwest of the Manvel field in the H.&T.B. Survey No. 64, Brazoria County.

Louisiana Coast

Along the Louisiana Coast, interest was centered on the West Gueydan Prospect, Vermilion Parish, where Magnolia Petroleum Co. No. 1 J. B. Ferguson showed evidence of distillate production on a drill stem test. On a 16-minute test through perforated casing at 7,140-50 feet, 925 feet of fluid was recovered of which the top 25 feet was distillate and the balance was gas-cut drilling mud. The hole was drilled to a total depth of 9,144 feet and plugged back to 7,150 feet, where a short string of 9⅝-inch casing was cemented. Seven-inch casing is being cemented for a production test.

Flank production in the Lockhart field, Calcasieu Parish, was indicated by the showing of Continental Oil Co. No. 1 J. H. Moss located on the west flank in section 8-10s-9w. Perforations were made at a plugged back depth of 5,325-34 feet, and the well flowed oil and wash water at the rate of 400 bbls. per day before the well sanded up. The tubing is being pulled to clean out the screen and the well is scheduled to be retested the first of the week. Additional sands are reported to have been cored at 4,700, 4,900 and 5,100 feet.

A second producer for the newly opened Baton Rouge field, East Baton Rouge Parish, was indicated by William Helis No. 1 Harry Nelson, which is shut down to run an electrical survey after coring oil sand at 6,471-6,500 feet. The hole is bottomed at 6,502 feet and casing is scheduled to be cemented for completion. The operator's No. 2 Duplantier, section 65-7s-1w, cored oil and salt water sand at 6,500 feet and the hole is being cored deeper after an electrical survey showed unfavorable results.

Old Fausse Point

Additional development for the Old Fausse Point Salt Dome, Iberia Parish, was assured by the completion of Texas Co. No. 4 State, section 34-11s-8e. Perforations were made with 215 holes at 7,935-9,000 feet and the well flowed an initial production of 25 bbls. of fluid per hour of which 15 per cent was sediment and water. The flow was through a 10/64-inch choke, with working pressure on the tubing 1,300 pounds.

Another extension for the Villa Platte field, Evangeline Parish, was being made as Amerada Petroleum Corp. prepared No. 1 A. Fournier for completion. The hole is bottomed in the discovery horizon at 9,046 feet and 6⅝-inch casing has been cemented for completion. Continental Oil Co. No. 1 T. E. Vidrine, section 47, tested salt water through perforated casing at 8,975-9,000 feet and will probably be abandoned. This is an outpost which was drilled to total depth of 10,506 feet, and is considerably lower on the structure, having topped the Wilcox formation at 9,850 feet.

Texas Co. No. 11 St. Martin Land Co., situated on the Henderson salt dome, St. Martin Parish, cored broken sand showing oil at 7,152-80 feet and sand showing oil at 7,261-70 feet. It is coring ahead in salt water sand below 7,276 feet. Location is in section 21-8s-7e.

Gulf Oil Corp. No. 1 Grand Prairie levee district, a wildcat located on the Bird Island Prospect, section 6-20s-19e, Plaquemines Parish, cored broken sand and shale with a good oil showing and is being watched with much interest. Sandy shale with a gas odor was cored at 5,682-87 feet; sand, shale and shells with an oil odor at 5,816-19 feet, and sand and shale, having an oil odor, at intervals from 5,821-26 feet.

Fohs Oil Co. No. 1 Buckley-Bourg, Terrebonne Parish, completed last week as the deepest producer in the world, has been shut in to change connections which froze after the pressure on the well rose above 4,000 pounds. While cleaning out, the well flowed an estimated 1,225,000 feet of gas and 43 bbls. of distillate. The well was completed in the Miocene sand through perforated casing at 13,254-66 feet.

TEXAS GULF COAST COMPLETIONS

Brazoria County

Hastings field: Humble Oil & Refining Co. No. 2 Pat O'Day, sand 5,975-6,050 feet, 660 bbls., quarter-inch choke. Stanolind Oil & Gas Co. No. 21 Drake, perforated casing 5,618-38 feet, 568 bbls., quarter-inch choke. Stanolind Oil & Gas Co. No. 2 R. W. Froberg, perforated casing 6,038-98 feet, 511 bbls., quarter-inch choke. Stanolind Oil & Gas Co. No. 7 Surface, perforated casing 5,252-5,305 feet, 522 bbls., quarter-inch choke. Old Ocean field: Harrison & Abercrombie No. 1 Augsburger, perforated casing 9,920-10,010 feet, 300 bbls., various sized chokes. Pledger field: Danciger Oil & Refining Co. No. 1 Carter, perforated casing 6,580-6,610 feet, 3,500,000 feet of wet gas, quarter-inch choke. West Columbia field: Powers and others No. 1 H. Perry, sand 5,580-5,626 feet, 530 bbls., quarter-inch choke. Texas Co. No. 23 Abrams, sand 5,426-5,507 feet, 545 bbls., quarter-inch choke. Texas Co. No. 5 Smith, perforated casing 5,450-69 feet, 489 bbls., quarter-inch choke.

Chambers County

Cotton Lake field: J. R. Turnbull and Irwin No. 1 V. A. Lawrence, 6,520 feet, 507 bbls., quarter-inch choke.

Fort Bend County

Thompson field: Gulf Oil Corp. and Humble Oil & Refining Co. No. 13 A. E. Meyers, sand 3,139-53 feet, 101 bbls.. six hours, quarter-inch choke. Humble Oil & Refining Co. No. 36-X Lockwood and Sharpe, sand 3,234-55 feet, 10 bbls., quarter-inch choke.

Galveston County

Dickinson field: Pure Oil Co. No. 4 Sam Levine, perforated casing 8,067-74 feet, 389 bbls., quarter-inch choke. High Island field: Stanolind Oil & Gas Co. No. 3 C. E. Smith, 5,372 feet, 200 bbls., quarter-inch choke.

Harris County

Fairbanks field: Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 F. W. Farnsworth, perforated casing 6,828-36 feet, 538 bbls., quarter-inch choke. Amerada-Stanolind Oil & Gas Co. No. 1 C. W. Hahl, perforated casing 6,866-70 feet, tested salt water, abandoned. Amerada-Stanolind Oil & Gas Co. No. 1 Niteland Investment Co., perforated casing 6,774-6,826 feet, 19 bbls. oil, 106 bbls. salt water, quarter-inch choke. Amerada-Stanolind Oil & Gas Co. No. 1 A. Sebek, perforated casing 6,849-52 feet, 94 bbls. fluid, 25 per cent oil, balance salt water. Amerada-Stanolind Oil & Gas Co. No. 1 E. H. Spaulding, perforated casing 6,835½-45½ feet, 376 bbls., quarter-inch choke. E. M. Hailey No. 1 Fisher, 6,976 feet, abandoned. Housch and Thompson No. 1 Arriola, perforated casing 6,834½-39½ feet, 610 bbls., quarter-inch choke. H. E. Williams No. 1 M. Sterns, perforated casing 6,823-33 feet, 373 bbls., 12 hours, quarter-inch choke. Friendswood field: Humble Oil & Refining Co. No. 9-B A. Grey, 6,620 feet, abandoned. Tomball field: Humble Oil & Refining Co. No. 1-B N. C. Mathews, perforated casing 5,566-71 feet, 540 bbls., quarter-inch choke.

Matagorda County

Van Vleck field: Skelly Oil Co. No. 3 Rugeley, perforated casing 8,232-38 feet, 385 bbls., three-sixteenths inch choke.

Orange County

Orange field: Gulf Oil Corp. No. 2 Cora Granger, 5,961 feet, 476 bbls., quarter-inch choke.

Polk County

Segno field: Gulf Oil Corp. No. 5 Wing, perforated casing 5,330-38 feet, 37 bbls. distillate, quarter-inch choke.

Wharton County

Withers field: Texas Co. No. 19-B Pierce Estate, sand 5,544-50 feet, 118 bbls., one-eighth inch choke.

California Field Report

By
L. P. STOCKMAN

Rio Bravo Field Is Rapidly Becoming Important Factor

LOS ANGELES, Calif., June 27.—The Rio Bravo field of Kern County is rapidly becoming an important factor in crude oil production, although operators are adhering strictly to curtailment. During the current week two new wells were finished in this field and four more should be tanking oil within three weeks. General Petroleum Corp. got its first producer at Rio Bravo a few days ago when No. 2 Wagoner in section 35-28-25 was brought in flowing 2,596 bbls. of 38.4 gravity and 1,650,000 feet of gas per day from the Rio Bravo zone at 11,426 feet. Top of the pay was logged at 11,283 feet and the well was brought in flowing through a 32/64-inch bean showing a tubing pressure of 1,600 pounds and a casing pressure of 450 pounds. General Petroleum has been held up for several months with No. 1 Wagoner due to mechanical trouble but the crew is nearing the end of a long redrilling job as the bit is within 100 feet of bottom of the hole at 10,192 feet. The company has two additional derricks standing and plans call for spudding in No. 4 Wagoner within 10 days.

Superior Oil Co., the most aggressive operator in the Rio Bravo field, completed another excellent well this week, giving the company a total of six producing wells. The company's new producer was No. 1 Anderson in section 35-28-25, completed flowing 6,100 bbls. of 27.5 gravity and 7,500,000 feet of gas per day from 11,608 feet. This well, which extends the productive limits of the field 2,000 feet northeast, was brought in barefoot flowing through the 2½-inch tubing and through the annular space between the tubing and casing. Initial production was flowed through a 32/64-inch tubing bean and a 36/64-inch casing bean and pressures reached 1,380 pounds on the tubing and 1,250 pounds on the casing. Top of the pay was logged at 11,386 feet. The well is the lowest structurally to be drilled on the Rio Bravo anticline and it had field men somewhat concerned when the bit passed 11,350 feet with the pay not yet in sight. Union Oil Co. is still held up with mechanical trouble in No. 2-34 Kern County Land and has not made much progress during the past month. The company is, however, making good progress with No. 3-34 Kern County Land now down 11,100 feet and in No. 4-34 Kern County Land, a recent spud. Late this week Union's field department staked location for No. 5-34 Kern County Land in the northern part of this lease in section 34-28-25.

Torrance

Operators in Torrance field have closed a busy week during which seven wells were completed. Texas Co. completed the largest well as its No. 10 Wilson was brought in flowing 676 bbls. of 27.7 gravity through a 42/64-inch bean from the deep zone at 5,020 feet. This new well, which was spudded in at the grass roots in comparison with many other wells which are being deepened, was finished with an 8⅝-inch water string cemented at 4,900 feet and 171 feet of 5¾-inch liner including 137 feet of 80-mesh landed at 5,018 feet. No. 11 Wilson on the same lease has been finished at 5,026 feet and should be given a production test within a few days. Star Petroleum Co. No. 1 G. & A. showed an initial daily production of 590 bbls. of 26.9 gravity upon completion at 4,965 feet after the hole had been finished with 87 feet of 5-inch liner including 65 feet of 120-mesh landed on bottom. Patton & Conway, who experienced considerable success during the early life of the Torrance field and who are keeping step with the deepening program, have completed No. 1 fee flowing 577 bbls. of relatively clean 26.8 gravity per day after deepening to 4,997 feet. This well was returned to production flowing through a 34/64-inch bean and shows a tubing pressure of 125 pounds and a casing pressure of 550 pounds.

Berken Oil Co. No. 1 Aitken, a new well started from the grass roots, has been completed flowing 384 bbls. of 27.6 gravity from 4,998 feet. No. 1-K Van Allen of Elexico Oil Corp. has been completed flowing 410 bbls. of 27.4 gravity through a 30/64-inch bean from 5,014 feet and the company is making plans to begin drilling operations on No. 2-K Van Allen. Walter Hughes No. 2 Torrance was completed a few days ago flowing 211 bbls. of 25.8 gravity cutting 6 per cent from 5,015 feet, but this operator is not at all satisfied and expects to rig up pumping equipment. This well does not seem to have much kick although the fluid head is rather high and it is believed production can be more than doubled on the beam. No. 1 Lyman of Grubbs & Main has been finished pumping 236 bbls. of 27.4 gravity after the hole had been deepened from the upper zone to 5,023 feet and plugged back to 5,016 feet. It was finished with 147 feet of 100-mesh landed at 5,015 feet. After a rather slow start, drilling operations in the Torrrance field have shown a substantial increase during the past 30 days and the favorable production shown by recent completions is greatly stimulating both new work and redrilling and deepening. For several months last year the initial daily production of wells deepened to the lower zone averaged around 200 bbls. per day each but as operations were expanded over the field better wells were secured.

Wilmington

Four new wells were completed in the Wilmington field this week but only one showed substantial production. This was Union Pacific Railroad Co. No. 8-E, bottomed beneath property of Southern California Edison Co. at 3,915 feet and completed flowing 5,400 bbls. of 24.5 composite gravity from the Ranger and Terminal zones. It was finished with 470 feet of 6⅝-inch liner cemented through perforations at 3,490 feet and a 6⅝-inch flow line. The liner carried perforations at 3,492-3,550 feet, 3,570-3,695 feet, 3,710-20 feet and at 3,740-3,872 feet. Hogan Petroleum Co., headed by Dana Hogan, completed its fourth producing well in the Wilmington field when No. 4 Graham was finished in the Ranger zone flowing 410 bbls. of 17.1 gravity through a 42/64-inch bean from 3,132 feet. This well, beaned back to 200 bbls. per day by reducing the flow bean to 18/64-inch, was finished with 380 feet of 7-inch liner including 365 feet of 60-mesh landed on bottom. Richfield Oil Corp., the most active operator in the Wilmington field at present, has completed No. 2 Rio Grande Terminal pumping 65 bbls. of 14.8 gravity from the Ranger zone at 3,380 feet after the hole had been finished with 358 feet of 6⅝-inch liner including 318 feet of perforated. This is the smallest well finished by this company in the field and may result in a clean-out job to stimulate production. On the Blinn lease, General Petroleum Corp. No. 3 has been completed flowing 130 bbls. of 17.5 gravity from the Ranger zone with bottom of the hole in the Terminal zone at 3,643 feet. The Terminal zone was wet, however, thus precluding maximum production. Union Pacific Railroad Co. is starting seven new wells in the Wilmington field as the company has this many derricks standing although it may not start all of them at once. Drilling operations have been severely restricted by most operators during the past several weeks to enhance curtailment.

Kettleman Hills

Two new wells were completed in the Kettleman North Dome field during the week and both registered excellent production. Kenda No. 6-8-Q in section 8-22-18 was completed flowing 3,916 bbls. of 32.6 gravity and 2,800,000 feet of gas from the Temblor through two 2-inch beans from a depth of 8,189 feet. Standard Oil Co. No. 85-7-Q in section 7-22-18 was finished flowing 1,391 bbls. of 34.5 gravity and 8,500,000 feet of gas from 7,950 feet. This well was brought in flowing through two 80/64-inch beans and two 91/64-inch beans and shows a tubing pressure of 160 pounds and a casing pressure of 1,200 pounds. Standard No. 27-21-J, a recent completion in the Avenal zone at 10,800 feet, has been beaned back to approximately 400 bbls. per day but is still producing around 5,000,000 feet of gas. No. 46-13-H, another well that Standard has bottomed in the Avenal zone, is being held up with mechanical trouble resulting from loss of the sand line with bottom of the hole at 10,836 feet. Kenda Avenal zone test, No. 67-20-J in section 20-21-17 is going ahead in a hard gray shale at 11,050 feet and may be carried down to determine production possibilities of the Cretaceous. Drilling operations in the Kettleman North Dome field have reached the settled

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	June 17		June 10			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	203,139	.....
Diesel and gas oil	.....	.....	.....	.....	.....	176,726
Gasoline	132,562	18,937	118,613	16,945	1,469,363	1,611,790
Kerosene	.....	.....	.....	.....	199,453	198,231
Foreign exports—						
Crude oil	629,591	89,942	143,848	20,550	11,813,947	6,297,375
Fuel oil	.....	.....	215,936	30,848	4,022,112	6,655,492
Diesel and gas oil	38,885	5,555	177,996	25,428	2,795,902	3,206,557
Gasoline	250,536	35,791	71,553	10,222	3,198,087	3,469,256
Kerosene	6,145	878	68,928	9,847	574,647	1,094,687
Asphalt	15,564	2,223	.....	.....	15,564	.....
Other unfinished oil	.....	.....	.....	.....	.....	417,760
Coastwise-domestic—						
Crude oil	176,950	25,279	169,411	24,202	5,124,526	3,242,097
Fuel oil	154,740	22,106	275,265	39,324	4,996,691	6,906,736
Diesel and gas oil	44,116	6,302	32,885	4,698	821,083	1,071,047
Gasoline	238,194	34,028	156,516	22,359	6,889,817	6,378,605
Kerosene	7,397	1,057	12,148	1,735	137,831	96,778

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	178,662	152,932
Gasoline	.....	.....	.....	.....	9,499	25,778
Asphalt	.....	.....	.....	.....	364,862	141,401
Lubricants	.....	.....	.....	.....	13,665	12,857
Foreign exports—						
Crude oil	119,779	17,111	.....	.....	2,624,368	1,391,317
Fuel oil	.....	.....	121,680	17,383	1,060,946	984,218
Diesel and gas oil	109,367	15,624	49,463	7,066	1,028,077	1,370,094
Gasoline	211,480	30,211	58,450	8,350	2,401,349	2,511,838
Kerosene	.....	.....	5,871	839	439,164	355,360
Asphalt	.....	.....	56,258	8,037	56,258	.....
Lubricants	6,356	908	.....	.....	184,327	307,142
Coastwise-domestic—						
Fuel oil	76,411	10,916	64,314	9,188	3,065,037	3,016,336
Diesel and gas oil	.....	.....	18,962	2,712	698,620	434,462
Gasoline	165,438	23,634	157,601	22,514	3,160,173	2,080,191
Kerosene	.....	.....	7,523	1,075	281,609	75,066

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stage and will probably continue at the present rate for some time. The large amount of undeveloped acreage in the North Dome means that development work will continue for several years.

Coastal Area

The Santa Maria Valley field, which showed such a rapid increase in drilling operations several months ago, is rapidly becoming a quiet settled field as far as development work is concerned. Attempts have been made to induce major buyers to take a prorata share of Santa Maria Valley crude oil in an effort to stabilize production at 12,000 bbls. per day. This crude oil at present prices could be blended with a sweet crude oil and handled to advantage but under present conditions the market is limited. Operators are reluctant to spend any additional sums to get out production in a market that can not absorb it. During the current week F. E. Jones completed his No. 2 Wisconsin in section 27-10-34 pumping 470 bbls. of 16.4 gravity from 4,657 feet and then shut the well in. Selegna Oil Co. has completed No. 1 S. M. flowing 530 bbls. of 16.2 gravity from 5,250 feet and followed a similar procedure. Union Oil Co. is working on four drilling wells in the Santa Maria Valley field but will probably keep drilling to a minimum. In the Shiells Canyon district of Ventura County, El Rancho Oil Co. has recompleted No. 1 Elkins pumping 213 bbls. of 21.3 gravity after plugging the hole back to 3,100 feet. This well was originally carried to 5,157 feet, but failed to show commercial production.

Los Angeles Basin

D. & B. Oil Co. discovery well in the Lomita section of Los Angeles Basin is still holding up in good shape several days after completion and present plans call for additional drilling in the immediate future. The lease calls for a total of 20 wells with a 90-day drilling clause between completions. This well is in close proximity to Harbor City and may result in some town lot drilling although the trend of the structure has not been determined. Leasing activities have been brisk during the week but prices of acreage appear rather high in many instances. In the Long Beach field, Richfield Oil Corp. has completed No. 5 Bixby, a new well pumping 280 bbls. of 23.9 gravity from 4,583 feet. This well was finished with 430 feet of 5¾-inch liner including 93 feet of perforated landed on bottom. In the northwest end of the Long Beach field Hilldon Oil Co. has landed a string of 7-inch in its No. 1-A Dominguez on bottom, 7,737 feet preparatory to an early production test. This well, the first deep test drilled in the Hilldon area, has cored approximately 388 feet of oil sand in the Miocene. It is the intention of proceeding with a production test within 10 days following perforating of the casing. In the Dominguez field, W. W. Stabler completed an excellent well when No. 2 Mariand was recompleted flowing 428 bbls. of 28.4 gravity from 4,375 feet. This production is satisfactory because this well is one of several abandoned years ago by Mariand Oil Co. It is well out on the south flank of the structure and the securing of clean oil indicates careful work was done. The hole was finshed with 65 feet of 4½-inch liner including 43 feet of perforated. The original depth was 4,288 feet but Stabler redrilled the hole from 3,100 feet and cemented a string of 5¾-inch at 4,343 feet. The well was completed flowing through an 11/64-inch bean and shows a tubing pressure of 70 pounds and a casing pressure of 375 pounds. Union Oil Co. recompleted No. 50 Callender in the Dominguez field but it was good for only 98 bbls. of 28.3 gravity cutting 20 per cent from 7,433 feet.

Montebello

Brookline Oil Co. has logged the sixth zone of Miocene age in the Montebello field and plans are being made to make a formation test before setting pipe. The company has cored 79 feet of oil sand in the sixth zone down to 6,412 feet in No. 1 Drake Community and if clean this zone should result in a satisfactory completion. This well is in the extreme southwestern end of the new area now undergoing development and a good completion would stimulate additional drilling in the western end. Union Oil Co. has concluded drilling operations on No. 1 Howard & Smith in the western extension at 5,770 feet and has cemented a string of 8⅝-inch at 5,435 feet. This well is scheduled for completion within 10 days. In addition Union Oil Co. is drilling in No. 2 Howard & Smith and is building rig for No. 2 Paul Howard. St. Helens Petroleum Co., discoverer of the deep productive zone in the western end, should have No. 27 Monterey ready for a production test soon. There has been a consistent increase in drilling operations in

(Continued on Page 102

By MITCHELL TUCKER

Andrews County New Pools; Discoveries in Central Texas

FORT WORTH, Tex., June 27.—The possibility of two new producing areas in Andrews County and several new pools in the West Central district were the features of another week's development in the western Texas area.

R. R. Rhodes, J. D. Tompkins and others No. 1 Emma Cowden, wildcat, in south central Andrews county, opened a new producing area last week when it was estimated good for 100 to 125 bbls. of oil per day from pay horizons from 4,170 to 4,220 feet. The wildcat is about 2½ miles north of the small Emma pool and about 6 miles north of the North Cowden pool.

Another prospect in southern Andrews County, Olson Drilling Co. (formerly H. S. Forgerson) No. 1 Lockhart-Brown, 5 miles west of the south end of production in the Fuhrman pool, swabbed 30 bbls. of oil per hour following a 1,500-gallon acid treatment. The pay section will be re-treated with 6,000 gallons before initial production tests are made.

Ector County received another important test when Sinclair Prairie Oil Co., seeking to extend the recently discovered Moss area, 2 miles south of the Harper pool, staked No. 2 Moss in section 40, Block 44, T.&P. Survey.

In the Sand Hills Ordovician production area of central Crane County, Gulf Oil Corp. is still testing its No. 8 Waddell, prospective one-quarter mile north extension to the area. Seven-inch casing was cemented at 5,973 feet, after slight saturation and porosity had been found in a core at 6,078-83 feet.

North Basin Area

Assuring a mile and a half southwest extension to the Denver area of the Wasson pool in Yoakum and Gaines counties, Helmerich & Payne, Inc., and Continental Oil Co. No. 1 Dowell, flowed 240 bbls. of oil per day on official gauge through three-quarters inch choke, with a gas flow of 2,420,000 feet. Gulf Oil Corp. has already staked an outpost 1½ miles due west of this new producer.

In northeastern Gaines County J. T. Perryman, Jr., No. 1 C. H. Doak, an important wildcat, topped Yates lime, a dependable marker in the area, 136 feet higher than in a wildcat 4 miles west. The test was drilling at the close of the week below 4,027 feet.

An important wildcat in southwestern Gaines County, Eastland Oil Co. No. 1 P. C. Dunbar, is preparing to reacidize after production attempts by swabbing failed. The test is bottomed at 4,640 feet, and after a 3,000-gallon acid treatment it swabbed only an estimated 2 bbls. of oil per hour. Testing continues.

In southwestern Cochran County, the Texas Co. No. 1 Mallett Land & Cattle Co. is installing a pumping unit after the well showed an estimated 5 bbls. of oil per hour on swabbing tests. Total depth is 5,059 feet.

The Slaughter pool of Hockley County received a half-mile east outpost on the north end of production when Sid W. Richardson staked No. 2 Slaughter. This five-well pool is yet undefined on all sides.

Larry E. Hultz No. 1 P. J. Ross, which gave indications two weeks ago of opening a new pool in Terry County, was plugged and abandoned last week at a total depth of 5,181 feet after drilling into sulfur water at that depth.

Pecos County

In the Imperial area of northern Pecos County Magnolia Petroleum Co No. 1-A Tex-Mex-McKee, wildcat, which has been drilling in the Ordovician for the past six months, encountered 4,100 feet of sulfur water in 16 hours last week from 6,262 feet to 6,267 feet. The hole has been plugged back to 6,197 feet and is now shut down waiting on cement to set.

WEST CENTRAL TEXAS

Possibility of two new oil pools in Throckmorton County was seen last week, one a deep Caddo lime pool and the other a shallow Tannehill sand pool. In the southwestern part of the county, Jones and Stasney No. 1 Brockman topped the Bend lime at 4,286 feet and had taken 12 feet of penetration when it made its first showings of oil and gas. Several sections indicating production possibilities were found below this level, and as the week closed the well was reported making about 60 to 75 bbls. of oil per day with operators undecided as to whether to drill deeper and test the Marble Falls formation 200 feet below, continue to the Ellenburger for a test of that formation, or complete the well at its present depth. In the southwestern part of the county, Crawford, Brown & Humphrey No. 1 J. A. Mathews, in the Narcissa Thompson Survey, gave indications of a new shallow pool. When the hole was drilled to 781 feet the well flowed by heads over the derrick. It was estimated good for 30 to 40 bbls. per day. Decision has not been made as to whether the well will be completed or carried to its contract depth of 3,400 feet.

Eastland County

Prospects for opening a new deep pool in Eastland County were seen when Haner, Hose & Reeves No. 1 P. C. Larkin, 16 miles south of Cisco, made several heads of oil while cleaning out. The well will be acidized and a production test made. Pay section was from 3,060 to 3,100 feet.

Stephens County was definitely assured of a new Lake Sand producing area when G. Willard Rich No. 1 J. W. Andrews, 6 miles east of Moran, blew in to flow an estimated 200 bbls. of oil in about four hours. The sand was topped at 3,667 feet and the oil figured 47 gravity. The same operator plans to begin two offsets immediately.

In Jones County, either indicating a three-quarters mile spread to the Lewis pool or a new producing area, W. L. Snoddy and C. C. Dodson No. 1 C. L. Steffens and others made an estimated 100 bbls. of oil per day. The Bluff Creek sand was topped at 1,883 feet and drilled to 1,909 feet. The well will be given a small shot before a production gauge is taken. Another prospective pool opener in Jones County was initially gauged at 80 bbls per day last week. It is L. R. Terry and others No. 1 J. O. Bartlett, near the Jones-Shackelford County line, and about 8 miles northeast of Abilene. Production is from the Tannehill sand at 1,590-92½ feet.

Promising a new Noodle Creek lime pool for Fisher County, Daube Brothers and Forest Development Co. No. 1 Bennett, 3 miles southwest of Rotan, last week swabbed at the rate of 30 bbls. of fluid per hour, 50 per cent wash water, as operators were attempting to shut off bottom-hole water and complete the well.

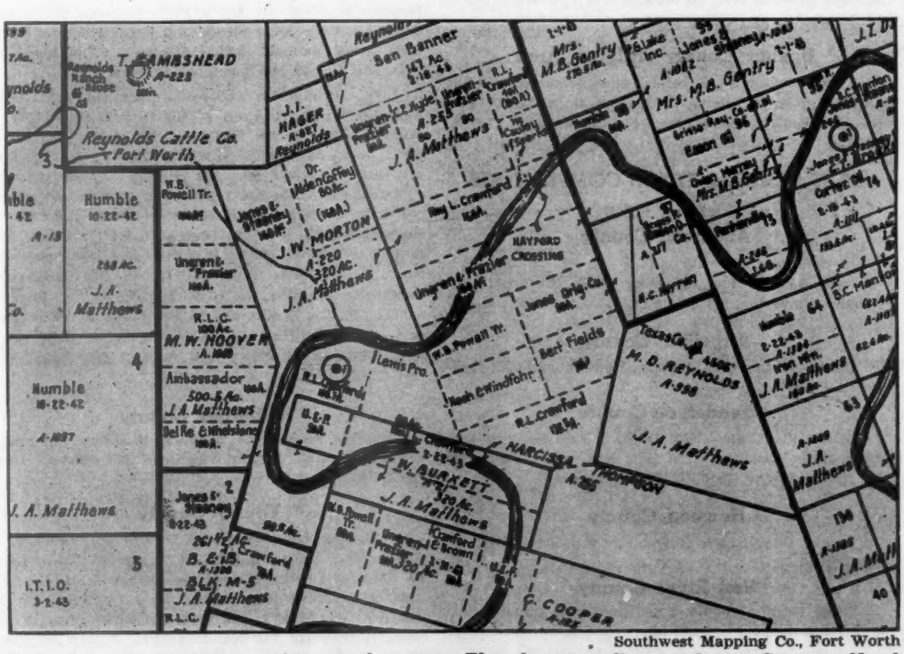
In the Oplin area, southwestern Callahan County's Ordovician pool, Hughes & Cooper No. 1 Straley, east outpost, was deepening past gas showings at 4,375 feet where it had been shut down for control connections before drilling into the expected pay horizon. South offset to the pool opener, Petroleum Drilling Co. No. 1 Cook & Jordan was reported to have found 5 feet of saturation in an 18-foot core at 4,350-68 feet. Operations were suspended pending an electrical survey of the hole.

Third test for the new southern Haskell County Pardue pool was spudded in last week by Forest Development Co. as a west offset to its No. 2 A. E. Pardue, 1,500-bbl. north extensioner.

Northwestern Shackelford County's important wildcat, Forest Development Co. No. 1 Hendrick, was declared a failure after the hole filled with water when casing was perforated for production test. The hole is being plugged from a depth of 4,844 feet.

PANHANDLE AREA

In the Panhandle completions and new locations showed a drop last week. Only nine wells were finaled in the area, two in Gray County, one in Potter and the



Southwest Mapping Co., Fort Worth

New deep Caddo lime pool in southwestern Throckmorton County, Jones, Stasney No. 1 Brockman. The well is now testing about 65 bbls. of oil per day from 4,298 feet, in the Bend series

six in Hutchinson. Two new locations were reported in Gray County and five in Hutchinson County.

WEST TEXAS COMPLETIONS

(24-hour tests)

Andrews County

Atlantic No. 1 Texas University, dry and abandoned at 4,666 feet.

Bailey County

Etz & Robinson No. 1 Enochs, dry and abandoned at 4,334 feet.

Coke County

H. E. Odgen No. 1 Rawlins, dry and abandoned at 3,504 feet.

Crane County

Atlantic No. 5-A University, 3,370-3,556 feet, 1,372 bbls. Humble Oil & Refining Co. No. 1-B Tubbs, 4,350 4,430 feet, 16,724,000 feet of gas. J. M. Rusk No. 5 Hughes-Gibbs, 2,295-2,328 feet, 889 bbls.

Ector County

Carter & Naylor No. 4 Parker, 4,075-4,218 feet, 769 bbls. Gulf Oil Corp. No. 14-B Connell, 3,286-3,660 feet, 498 bbls.; No. 103 Goldsmith, 4,155-4,270 feet, 2,384 bbls.; No. 104 Goldsmith, 4,150-4,270 feet, 1,296 bbls.; No. 106 Goldsmith, 4,090-4,190 feet, 2,716 bbls.; No. 107 Goldsmith, 4,121-85 feet, 796 bbls. Landreth No. 1-B Johnson, 4,045-4,200 feet, 645 bbls. Mabee & Blackstock No. 3 Cowden, 4,047-4,272 feet, 1,210 bbls. Magnolia Petroleum Co. No. 4 Slatef, 4,220-4,254 feet, 260 bbls. Rushwold Oil No. 1 C. C. Woods, 4,155-4,337 feet, 1,848 bbls. Texas Pacific Coal & Oil Co. No. 4 F. Foster, 4,000-4,186 feet, 1,052 bbls. Texon Oil & Land No. 2 Midland National Bank, 4,125-4,297 feet, 1,308 bbls. Tide Water and Phillips No. 2 R. W. Smith, 4,155-4,330 feet, 523 bbls. Weekly Oil Corp. No. 1 E. F. Cowden, 4,105-4,275 feet, 476 bbls. L. H. Wentz No. 3 P. Moss, 4,018-4,185 feet, 1,784 bbls.

Fisher County

General Crude No. 1 Clyde Cassey, 3,552-53 feet, 442 bbls.

Howard County

L. D. Bradstreet No. 2 Chalk, location abandoned. Moore Bros. No. 2-A O'Daniel, 2,650-2,847 feet, 797 bbls.; No. 1-B O'Daniel, 2,647-2,861 feet, 585 bbls.; No. 6-A T. & P. Land Tr., 2,640-2,800 feet, 551 bbls.

McCulloch County

J. W. Westbrook No. 1 Johnson, 1,826-36 feet, 25 bbls.

Sterling County

Loffland & Moore Bros. No. 1-A J. S. Cole, abandoned at 1,994 feet.

Terry County

L. E. Hultz No. 1 Ross, dry and abandoned at 5,181 feet.

Upton County

Gulf Oil No. 174 McElroy, 2,663-2,773 feet, 15,480 bbls. J. K. Hughes No. 1-B Elder, 2,215-85 feet, 819 bbls. Pittman & Semco No. 2 Elder, 2,220-82 feet, 797 bbls. Stanolind Oil & Gas No. 49 Burleson, abandoned location.

Ward County

Gulf Oil Corp. No. 95 Estes, 2,515-2,940 feet, 1,168 bbls.

Winkler County

Gulf Oil Corp. No. 26 Keystone, 3,274-3,361 feet, 268 bbls. Humble Oil & Refining Co. No. 15-B Colby, 2,786-3,050 feet, 443 bbls. Magnolia Petroleum Co. No. 157 Walton, 2,844-2,942 feet, 573 bbls.; No. 158 Walton, 2,835-2,920 feet, 2,129 bbls.; No. 159 Walton, 2,836-2,944 feet, 1,624 bbls. Richardson Oils No. 6-F Scarborough, 2,945-60 feet, 201 bbls. Texas Pacific Coal & Oil Co. No. 3 Brown-Altman, 2,810-3,027 feet, 215 bbls.

Yoakum County

Crump & Black No. 1-B Bennett, 5,085-5,256 feet, 2,233 bbls. Humble Oil & Refining Co. No. 1 H. O. Wooten, 4,932-5,034 feet, 559 bbls.

WEST CENTRAL TEXAS COMPLETIONS

Callahan County

Gilman No. 1 Young, dry and abandoned at 2,129 feet.

Jones County

Iron Mountain-Humble No. 2 Peterson, dry and abandoned at 3,405 feet.

Palo Pinto County

W. K. Gordon No. 2 Crocker, dry and abandoned at 3,717 feet.

Shackelford County

Hoffman-Page No. 28 Morris, 1,576-86 feet, 10 bbls. per day. Iron Mountain Oil No. 2 Ivy, 3,203-27 feet, 147 bbls. per day. Westexas Oil & Refining Co. No. 5 Daw.-Con., dry and abandoned at 1,637 feet.

Stephens County

Perkins and others No. 1 Dance, 3,561-91 feet, 65 bbls. per day.

PANHANDLE COMPLETIONS

(24-hour tests)

Gray County

Kewanee Oil Co. No. 8 McKinney, 3,170-3,220 feet, 591 bbls. Texas Co. No. 28 Saunders, 2,734-78 feet, 371 bbls.

Hutchinson County

Drilling & Exploration Corp. No. 6 Pond, 3,037-57 feet, 571 bbls.; No. 20 Watkins, 2,950-3,011 feet, 568 bbls. Magnolia Petroleum Co. No. 4 S.W.&O.&D., 3,132-60 feet, 253 bbls. Phillips Petroleum Co. No. 7 Jordan, 2,942-3,080 feet, 160 bbls. Stanolind Oil & Gas Co. No. 10 Haile, 3,015-81 feet, 326 bbls.; No. 10 Terry, 2,945-78 feet, 162 bbls.

Potter County

Panhandle Eastern Pipe Line Co. No. 1-104 McBride, 1,815-1,976 feet, 47,699,000 feet gas.

East Texas Fields

(Continued from Page 82)

60 bbls.; H. H. Terte No. 6 I. Benson, 3,622-24 feet, 50 bbls.

Rusk County—Kilgore Area

Jones & Jones No. 3 M. Brock, 3,632-39 feet, 60 bbls.; Magnolia Petroleum Corp. No. 17 Nat Bean, 3,537-55 feet, 7 bbls.; Rudco Oil & Gas No. 4 L. Morse, 3,588-3,621 feet, 60 bbls.; J. Schulman No. 3 W. H. Smith, 3,701-03 feet, 35 bbls.

Rusk County—Joiner Area

General American No. 15 M. L. Thompson, 3,743-51 feet, 60 bbls.; Gulf Oil Corp. No. 17 J. Wiley, 3,690-3,702 feet, 35 bbls.; Humble Oil & Refining Co. No. 10 Lula Barton, 3,744-54 feet, 70 bbls.; Ohio Oil Co. No. 38 E. E. Moores, 3,604-60 feet, 30 bbls.; Royal Petroleum No. 3 G. Alexander, dry and abandoned at 3,635 feet.

Upshur County—Kilgore Area

E. C. Johnston No. 7 fee, dry and abandoned at 3,759 feet; Magnolia Petroleum Co. No. 5 J. B. Webb, 3,713-26 feet, 60 bbls.; Texfield Oil No. 7 E. O'Byrne, 3,722-27 feet, 20 bbls.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour tests)

Anderson County

In the Long Lake field, F. H. E. Oil Co. No. 2 C. Morrow, 5,344-80 feet, 31 bbls. Hunt Oil Co. No. 1 Broyles-Wolverton, 5,312-54 feet, 115,000,000 feet gas.

Angelina County

Ginter Brothers No. 4 Copes Heirs, abandoned location.

Henderson County

In the Flag Lake field, W. S. McGee No. 1 Mikel, dry and abandoned at 3,255 feet. Richards & Holloway No. 1 Tarkington, 3,047-62 feet, 172 bbls.

Houston County

Teague Oil No. 1-A Guffman, 1,980-2,044 feet, 139 bbls.

Red River County

Texas Trading Co. No. 2 Southern Pine Lumber Co., dry and abandoned at 2,155 feet.

Titus County

In the Talco field, Humble Oil & Refining Co. No. 6 R. L. Riddle, 4,166-4,293 feet, 297 bbls.

Upshur County

Tom Hunter No. 1 Carter, dry and abandoned at 9,389 feet.

NORTH TEXAS COMPLETIONS

Archer County

P. C. Burns No. 1 B. W. Garvey, 990 feet, dry. Burns & Omohundro No. 1 A. B. Edwards, 4,822 feet, dry. Chapman & McFarlin No. 7 W. P. Ferguson, 3,805-70 feet, 1,144 bbls. Fain-McGaha Oil Corp. No. 1 Mrs. O. M. Fuller, 5,159 feet, dry. W. L. Hawkins No. 9 W. R. Pace, 1,188 feet, dry. Westmount Oil Co. No. 7 J. T. Dempsey, 4,205 feet, dry.

Baylor County

Chatham & Harwell No. 1 Parker, abandoned location.

Clay County

Bridwell Oil Co. No. 2 Saner B, 1,235 feet, dry. Kimmell Lee & Co. No. 8 Mrs. L. Firestone, 387 feet, dry. Joe Rogers No. 1 C. P. Davis, abandoned location.

Cooke County

Kewanee Oil Co. No. 27 Lanier A, 1,205-21 feet, 25 bbls. Schermerhorn Oil Co. No. 16 M. Kessler, 1,320-45 feet, 30 bbls.

Jack County

Brazos River Gas Co. No. 7 J. M. Box, 2,795-2,985 feet, 25 bbls. W. R. Dearing No. 1 Jones B, 3,115-3,230 feet, 50 bbls. Martex Oil Co. No. 1 A. B. Kuykendall C, 2,940-3,096 feet, 124 bbls. H. S. Moss No. 5 Lowe and others, 3,005-3,109 feet, 65 bbls. Nelson Syndicate No. 2 J. E. Henderson B, 2,760-2,964 feet, 5,000,000 feet of gas. Green Reeder No. 1 Mrs. Knox and Duncan, 441 feet, dry. Howan Nichols Oil Co. No. 2 Matlock, 3,071-3,123 feet, 332 bbls. Royal Petroleum Co. No. 2 A. B. Kuykendall, abandoned location; No. 3 A. B. Kuykendall, abandoned location.

Wichita County

H. W. Gutzler No. 1 Jennie Jenne, 350 feet, dry. C. J. Bohner No. 3 First National Co., 3,805-59 feet, 808 bbls. Bolin & Whittington No. 2 Waggoner, 3,931-63 feet, 480 bbls.; No. 4 Waggoner, 900-15 feet, 25 bbls. L. T. Burns No. 7 K. T. Goetze, abandoned location. Chapman & McFarlin No. 5 Sparks-Mayfield, 3,874-3,904 feet, 692 bbls. Continental Oil Co. No. 1 Kempner, 3,769-3,833 feet, 328 bbls.; No. 1 Waggoner A, 3,748-3,800 feet, 256 bbls. Deep Oil Development Co. No. 1 Kempner, 3,758-3,805 feet, 1,048 bbls. Dorian & Mitchell No. 1 Sue Mitchell, 3,804-3,865 feet, 1,200 bbls. H. S. Gray No. 1 H. S. Gray, abandoned location. Haberle & Thornton No. 2 First National Co., abandoned location. King Oil Co. and Perkins-Cullum No. 9 Mrs. Anna Mangold, 3,722-3,830 feet, 1,136 bbls. R. Kohlman No. 12 Mertens, 1,236-91 feet, 8 bbls.

Lewis Production Co. No. 3 Mangold, 3,725-3,848 feet, 1,600 bbls. Lincoln & Moore and others No. 1 Munger, 3,864-70 feet, 552 bbls.; No. 2 Munger, 3,685-3,873 feet, 544 bbls. Mitchell Oil Co. No. 1 Sue Mitchell C, 3,826-75 feet, 832 bbls.; No. 2 Sue Mitchell C, 3,830-66 feet, 764 bbls.; Murray & Griffey and others No. 2 J. R. Pace A, 3,785-3,900 feet, 512 bbls. W. B. Omohundro No. 5 W. L. Hodges, 3,824-3,930 feet, 544 bbls.; No. 5 D. E. Hooks B, 3,782-3,859 feet, 768 bbls.; No. 6 D. E. Hooks B, 3,780-3,907 feet, 872 bbls. Panhandle Refining Co. No. 16 R. I. Coleman, 842-46 feet, 8 bbls. Pois & Schulz No. 18 Ed Foster J, 1,258 feet, dry. Retsal Drilling Co. No. 1 Watkins, 3,980 feet, dry. Texas Co. No. 28 First National Co., 3,608-3,854 feet, 1,424 bbls.

Wilbarger County

Paradise Oil Co. No. 5 W. T. Waggoner A, abandoned location; No. 2 Waggoner B, 1,535-45 feet, 120 bbls.

Young County

N. B. Crenshaw No. 1 J. C. Dwight, 4,435 feet, dry. Kleiner and others No. 61 C. W. Langston, 535-61 feet, 10 bbls. Ohio Fuel Supply Co. No. 1 S. D. Stagall, 4,000-28 feet, 660 bbls. R. H. Vise No. 2 R. W. King, 337 feet, dry; No. 1 Morrison, 3,833-3,956 feet, 1,800 bbls.; Rathke Oil Co. No. 1 Morgan, 3,822-4,365 feet, 10 bbls. Wise & Porterfield No. 6 Cullers, 553-600 feet, 20 bbls. Burlingame and others No. 1 G. C. Robinson, 459 feet, dry. Hickon-Reynolds No. 2 A. P Martin, 4,088-4,478 feet, 10 bbls.

Kansas Developments

By
DAL DALRYMPLE

Release "Frozen" Oil in Nine Pools in Sumner and Cowley

By an order issued on Saturady, June 25, the Kansas Corporation Commission released 75 per cent of the accumulated shortages of crude oil that had piled up in nine pools in Cowley and Summer counties. It will permit the production of about 30,000 bbls. of oil in the remaining days of the month that had been held back because of pipe line proration. The pools affected are Clark, David, South David, Geuda Springs, Rock, Sherwood, Rutter, Weathered, and Wellington. The Kanotex Refining Co. will purchase the crude and run it through its own pipe line. The crude to be run is in addition to the regular allowable production.

Western Kansas Oil & Refining Co. No. 1 Linsner, SW SW SE section 3-17-3w, three-quarters of a mile northeast of the South Ainsworth pool, Barton County, filled 1,000 feet with oil in one hour after the cement plug was drilled to 3,362½ feet, Arbuckle lime horizon. North of this well about three-quarters of a mile Vernon Oil & Gas Co. and others No. 1 Seyfert, NW SW NE section 3-17-3w, total depth 3,396 feet, in Arbuckle lime, had the earmarks of a good well.

Murphy and others appear to have made a discovery in Cowley County in their No. 1, C SE SE NW section 31-32-2e. The base of the Mississippi lime was logged at 3,642 feet and the Wilcox sand was topped at 3,696 feet. There was a rainbow showing at 3,715-22 feet; a trace of oil at 3,722-29 feet, and an oil and gas showing at 3,734-36 feet. The hole filled 1,000 feet with oil in three hours. This wildcat is 4 miles southwest of the Oxford pool.

The Thayer Drilling Co. and others test in C SW SW NE section 21-17-13w, Hoisington pool in Barton County, had not been completed when last heard from. It is the fourth test in the area and the first to produce from the Arbuckle lime, the field having been opened in the Lansing or Kansas City lime. It found the pay at 3,457-62 feet and filled 1,400 feet with oil in 30 minutes and later swabbed 7 to 10 bbls. hourly. The Gypsy Oil Co. drilled a test three-eighths of a mile northwest of it four years ago and got a dry hole at 3,525 feet, and a test was drilled in section 14, northeast of the Thayer well but it stopped at 3,366 feet, a dry hole. Olson Oil Co. and others drilled to 3,500 feet and quit in a test in the S half of the S half of section 16-17-13w.

Indian Territory Illuminating Oil Co. will open central and western Kansas headquarters at Great Bend on September 1, according to information from Great Bend. Present offices in the Wolcott Building at Hutchinson will be closed on that date.

Russell County

R. H. Shields No. 1 Anschutz, SW SW SE section 2-14-13w, a wildcat, was abandoned at 3,466 feet. It topped Siliceous lime at 3,432 feet but the formation was barren of oil.

R. H. Shields and others No. 2 Giese, C S half S half NE section 28-14-13w, found Kansas City lime pay at 2,892-2,907 feet. It was acidized with 20,000 gallons and produced 447 bbls. of oil in the first four hours and 456 bbls. the second four hours and was given a potential rating of 2,685 bbls. per day

Sinclair Prairie Oil Co. No. 2 Rogg, SE NE SE section 29-14-13w, topped Kansas City lime at 2,886 feet and drilled to 2,930 feet. It was acidized with 8,000 gallons and then with 15,000 gallons and was rated as a 1,863-bbl. well.

J. J. Hall No. 1 B. S. Landon, SW SW SE section 11-15-14w, a wildcat west of the Trapp field, opened a new producing spot in Kansas City lime topped at 3,068 feet, total depth 3,100 feet. It was given a 10,000-gallon acid treatment and produced 273 bbls. the first four hours and 171½ bbls. the second four hours and was rated at 1,029 bbls. per day.

Rice County

Western Kansas Oil & Refining Co. No. 1 Leach, SW SW SW section 22-18-9w, Rice County, was dry and abandoned at 3,362 feet. It had no showings. Siliceous lime lay at 3,323-62 feet.

Mid-Continent Petroleum Corp. No. 1 Schlicht, NE NE SE section 6-18-10w, topped Siliceous lime at 3,210 feet, and pay at 3,214-15 feet, total depth. It was treated with 2,000 gallons of acid and produced 912 bbls. in eight hours and was rated at 2,665 bbls. per day.

Marylyn Oil Co. and others No. 1 Vincent, NW NW NE section 5-21-10w, a wildcat in Rice County, was dry and abandoned at 3,372 feet. Siliceous lime at 3,362-72 feet filled the hole with water.

Estimated Daily Production

Estimated daily production for Kansas for the week ending June 25, and for the preceding week, was as follows:

	Barrels	
	June 25	June 18
Oxford City	1,275	1,250
Burrton	10,250	10,350
Ritz-Canton	4,250	4,300
Graber	2,100	2,675
Hollow-Nikkel	3,025	2,975
Lerado	900	1,075
Voshell	2,175	2,275
Wellington	625	550
Ellsworth County:		
Lorraine	1,875	2,350
Other pools	1,025	1,360
Rice-Barton counties:		
Bloomer	2,375	2,800
Chase	4,775	5,100
Geneseo	2,300	2,525
Raymond	825	925
Silica	11,625	11,025
Silica—South	2,025	1,725
Keesling	750	975
Wherry	3,425	5,075
Miscellaneous Rice	3,420	3,430
Miscellaneous Barton	4,820	5,365
Russell County:		
Fairport	1,980	1,910
Gorham	1,460	1,735
Russell	1,040	1,310
Sullivan	5,750	5,905
Trapp	8,410	8,000
Miscellaneous Russell	7,475	8,230
Sedgwick County:		
Valley Center	1,005	1,035
Miscellaneous	2,890	2,865
Ellis County:		
Bemis	6,725	7,025
Miscellaneous	2,185	3,000
Kingman County	550	635
Stafford County	2,885	3,965
Greenwood County	9,200	9,250
Butler County	14,750	14,760
Other fields	22,730	21,820
Total Kansas	152,975	159,550

Greenwood and Woodson Counties

F. Kelly and others No. 1 Neuschwander, 100 feet south and 125 feet west of C section 25-22-12, Greenwood County, was abandoned at 327 feet.

Cleveland Oil Co. and others No. 1 Fidelity Life Association, SE SE NE section 34-25-15, Woodson County, was completed as a 10-bbl. well in Mississippi lime pay at 1,421-26 feet, which had been acidized. Ward McGinnis No. 1-A George Hill, C SW SE section 32-26-15, was dry and abandoned in Mississippi lime at 1,315-40 feet. It was a wildcat.

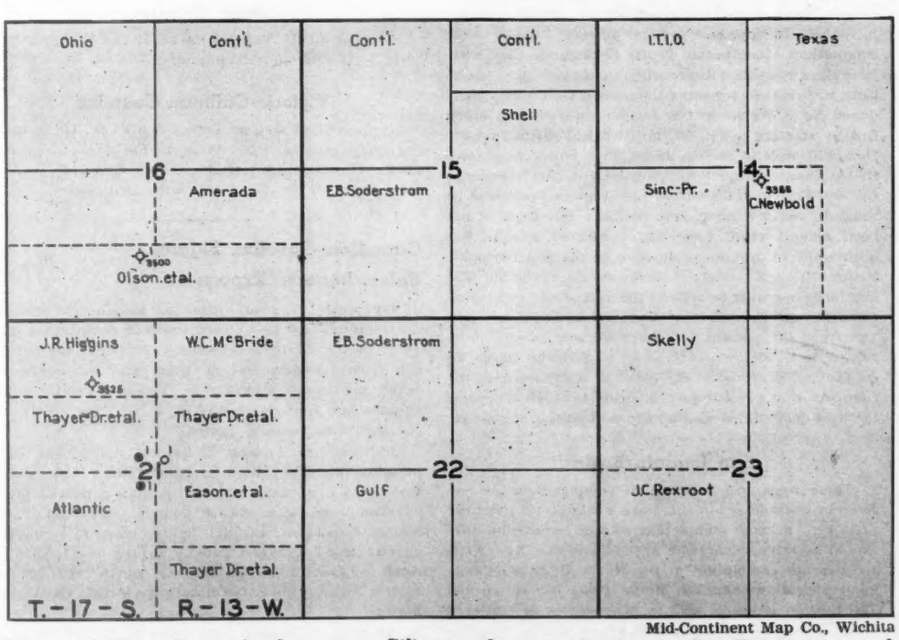
Sedgwick and Cowley Counties

In Sedgwick County, Union Oil & Refining Co. and others No. 1 Howell, SW SW SW section 6-29-1e, was dry and abandoned at 3,790 feet. Siliceous lime was topped at 3,738½ feet. It was a wildcat.

In Cowley County, Arthur Brewer Co. No. 1 City of Winfield, 330 feet from north and 970 feet from west lines of SW quarter section 15-30-4, had Bartlesville sand at 2,762-2,800 feet, which was shot with 40 quarts. The well made an initial production of 120 bbls. Lloyd and others No. 1-A Carson, 990 feet south and 660 feet east of C section 33-31-3, was dry at 4,050 feet and will be used as a water disposal well.

Stevens County

In Stevens County in the far southwest, Kuhn Brothers No. 1 Burrows, C NW section 22-34-38w, is a 6,500,000-foot gas well at a total depth of 2,895 feet, first gas



Mid-Continent Map Co., Wichita

Thayer Drilling Co. and others open Siliceous lime production in the Hoisington pool, section 21-17-13w, Barton County, which has heretofore produced only from Lansing lime

at 2,770 feet. The formation was acidized with 10,000 gallons.

Barton County

Magnolia Petroleum Co. No. 17 Roetzel, NW SE SE section 24-20-11w, Barton County, is an 815-bbl. well from Siliceous lime at 3,244-47 feet, acidized with 1,000 gallons and then with 2,000 gallons.

Ness County

Schoeppel & Elmore No. 1 Moses, C SW NW section 10-18-25w, a wildcat in Ness County, topped Mississippi lime at 4,345 feet, total depth 4,353½ feet. It was acidized with 1,000 gallons and then with 1,500 gallons and produced 209 bbls. of oil in eight hours together with about 40 bbls. of salt water. It was given a potential rating of 598 bbls. a day together with 125 bbls. of water. The oil has a gravity of 32.8 degrees A.P.I.

Reno County

Olson Oil Co. and Shell Petroleum Corp. No. 7 Nelson, C E half E half NW section 30-23-3w, was good for 237 bbls. per day after a 1,000-gallon acid treatment in pay at 3,362-68 feet.

L. E. Douglas and others No. 1 Durand, SE SE SW section 3-23-5w, was dry and abandoned at 4,024 feet. Siliceous lime at 4,006-24 feet was barren.

Finney County

Atlantic Refining Co. No. 1 Nunn, SE SE NE section 27-21-34w, Finney County, a wildcat, is a Mississippi lime producer. The lime was topped at 4,616 feet, total depth 4,667 feet. A 60-quart shot failed to bring production and it was acidized with 2,000 gallons and then with 6,000 gallons and is a 600-bbl. well, with about 30 bbls. of water. The gravity of the oil is 28.9 degrees.

Stafford County

Stanolind Oil & Gas Co. No. 1 J. K. Fischer, NW SW SW section 31-21-12w, Stafford County, had Siliceous lime at 3,638 feet, total depth 3,649 feet. It was treated with 2,000 gallons of acid and made a potential production of 961 bbls. in 24 hours.

Pure Oil Co. No. 4 Krey, SW SW SE section 14-24-11w, Stafford County, was good for 1,778 bbls. per day through tubing with 1,000,000 feet of gas from Misener sand at 3,805-29 feet, still in sand, which had not been shot or treated.

New Operations

In Greenwood County, Moffett and others made a location for No. 1 Life, NE SE SW section 13-26-9.

In Cowley County, S. L. Melton No. 1 Hunt, SW SW NE section 16-34-5, was spudded. Earl Wakefield No. 4 Wilson, NW NE NW section 4-32-3, rig up.

In Butler County, National Refining Co. made a location for No. 1 Wentz, SE NE NW section 7-27-6.

In Woodson County, Sinclair Prairie Oil Co. was moving in material for No. 16 McClaskey A, 1,000 feet from north and 220 feet from east lines of SE quarter section 3-23-14. Cyr Gas Co. and others were shut down at 900 feet in No. 1 Schrieber, SE SW SE section 8-25-14. Smalley & Stauffer No. 1 Samples, SE NW NE section 15-26-13, had sand at 1,110-46 feet, total depth, and shot it with 60 quarts and the crew was cleaning out.

In Ellsworth County Cities Service Oil Co. No. 3 Rolfs, NE SE NE section 14-17-9w, old total depth 3,193 feet, plugged back to 3,107 feet and acidized at 3,005-51 feet. It pumped off in six hours after producing 19 bbls. of oil. Later it pumped 32 bbls. of oil and 10 bbls. of water and pumped off.

In Rice County, Saco Oil Co. was rigging up No. 1 Foote B, NE NE SE section 7-20-9w. Atlantic Refining Co. made a location for No. 1 Habiger, NE cor. section 8-18-10w.

In Barton County, Indian Territory Illuminating Oil Co. No. 5 Schrepel, 440 feet from west and 330 feet from north lines of NE quarter section 26-20-11w, had material moved in. Western Oil & Refining Co. was moving in material at No. 1 Barnes, NW NW NW section 8-21-12w.

In Russell County, C. B. Davis No. 2 Gaynor, SW SE NW section 19-13-14w, was drilling at 1,500 feet. J. J. Hall (Smoky Hill Oil Co.) No. 32 Miller, NE NE SE section 30-14-13w, had rig up.

In Rooks County, Sunray Oil Co. deepened No. 1 Seneçal, SE SE SW section 26-10-19w, from 3,495 feet to Siliceous lime at 3,606-09 feet, and it made 10 bbls. per hour. It was acidized, but not yet tested.

In Ellis County, Wentz Oil Corp. and Phillips Petroleum Co. No. 1 Stackhouse, CNL N half SW section 23-12-18w, had rig up.

In Barton County, Atlantic Refining Co. and others No. 1 Sullivan, in section 29-17s-13w, was plugged back from 3,398½ feet to 3,205 feet and the crew was cleaning out.

In Reno County, Shell Petroleum Corp. No. 2 Nunemaker, 1,307 feet north and 20 east of C section 11-26-9w, was a location.

In Stafford County Atlantic Refining Co. and Phillips Petroleum Co. made a location for No. 2 Lyons, C E half NE NE section 28-24-13w. Atlantic Refining Co. made a location for No. 1 Wiser, NW NW NW section 13-24-14w.

In Ness County J. H. Carpenter and Oriental Oil Co. No. 1 Shiner, SW SW SE section 19-18-25w, was deepening from 4,438 feet, and had reached 4,450 feet with no increase in production.

In Pottawatomie County J. A. Turner made a location for No. 1 Unshide, C NW SW section 32-8-9.

New Wildcat Work

H. V. Elwell and Trees Oil Co. made a location for No. 1 Blair, a test in SE SE SW section 34-10-19w, Rooks County.

Cities Service No. 1 Hall, CEL W half NE section 35-11-17w, Ellis County, set casing at 78 feet.

Coralena Oil Co. No. 1 Hefferman, NE SE SW section 34-14-13w, Russell County wildcat, was drilling at 1,965 feet.

R. H. Shields No. 1 Rogg, CEL W half NW section 9-15-13w, a rig in Russell County.

Colonial Oil No. 1 Rust, NW NW NE section 19-17-13w, Barton County, set pipe at 100 feet.

Jones & Lane No. 1 Page, SE SE NW section 36-18-26w, Ness County, shut down at 3,270 feet.

Shell Petroleum Corp. No. 1 Cramm, CNL NE section 15-19-19w, Rush County, set surface pipe.

Rex & Morris No. 1 Newby, SW SW SE section 16-26-7, Butler County, drilling at 1,060 feet.

California Fields

(Continued from Page 98)

the western end of the structure and several additional wells will be spudded in shortly.

In the Rosecrans field Barnsdall Oil Co. and Union Oil Co. are making preparations to increase drilling and field production should show an increase as far as potential is concerned. These two operators who hold leases on most of the productive acreage will no doubt keep production down to the allotment set by the Central Committee of California Oil Operators. Barnsdall is about ready to spud in No. 9 Rosecrans and Union Oil Co. with three strings of tools in operation is grading locations for Nos. 22 and 24 on the Rosecrans lease. All these wells are headed down or will be drilled to the deep O'Dea zone in the upper part of the Miocene, discovered and proved productive by Barnsdall Oil Co. last year. Republic Petroleum Co. took out a permit to deepen No. 1 Trust, but reconsidered and decided not to go into the old hole for the present. Two or three completions are expected in the El Segundo field within 15 days and this will probably wind up drilling operations in this field for some time. Shell Oil Co. has abandoned No. 1 Weisel in the Anaheim district but offset this by starting a well in the Richfield district on the Hemphill lease in section 30-3-9. Tide Water Associated Oil Co. should complete preparations on No. 1 Porter in the San Fernando district of Los Angeles Basin and be ready to begin making hole within a few days. It has been several years since any concerted attempt has been made to develop production in the San Fernando Valley although geological conditions are favorable. The last large operator to drill in the valley was Petroleum Securities but this wildcat was abandoned as a dry hole. The trend out toward San Fernando and Saugus probably reflects the discovery of an oil field by Barnsdall Oil Co. last year out in the Newhall district where the company is at present getting ready to make a production test on its third well on the Rancho San Francisco.

San Joaquin Basin

There were only a few wells completed in the San Joaquin Basin area but there are a number of potential producers nearing completion so the completion lists should be large during the next few weeks. New wells are nearing completion in the North Belridge, Canal, Fruitvale, Midway-Sunset, Mount Poso, Rio Bravo and Ten Section fields as well as other wells in scattered areas. Signal Oil Co. completed a well in the Maricopa section of the Midway-Sunset field when No. 5 Kendon in section 35-32-23 was brought in pumping 40 bbls. of 14.5 gravity cutting 4 per cent from a depth of 1,701 feet. It was finished with 205 feet of 6⅝-inch liner including 157 feet of perforated landed at 1,698 feet. There is a probability this well will be deepened if it fails to hold up. In the Ten Section field Shell Oil Co. should complete No. 38-29-A Kern County Land within a few days as it is in the pay at 8,165 feet. In the North Belridge field, Tide Water Associated Oil Co. has reached 8,300 feet in No. 3 in section 21-27-20 and Belridge Oil Co., discoverer of production in both the Temblor and Eocene in this field, will begin swabbing No. 26 in section 35-27-20 following completion of drilling at 8,671 feet. The latter well has been finished with 759 feet of 4½-inch liner including 521 feet of perforated landed on bottom and cemented through perforations at 8,150 feet. No. 4 Martin of Texas Co. is within a few hundred feet of completion and should be ready for a production test within a few weeks.

Southwest Texas Fields

(Continued from Page 79)

eighth inch choke. Luby field: Seaboard Oil Corp. No. 10 Luby, 5,073 feet, 120 bbls., one-eighth inch choke. Seaboard Oil Corp. No. 26 Luby, 5,184 feet, 147 bbls., one-eighth inch choke. Seaboard Oil Corp. No. 29 Luby, 5,069 feet, 144 bbls., one-eighth inch choke. South Clara Driscoll field: Wellington Oil Co. No. 5 Dugger, perforated casing 5,305-20 feet, 156 bbls., 12 hours, three-sixteenths inch choke. Stratton field: Camp Production Co. No. 5 Wardner, 6,482 feet, 135 bbls., 11/64-inch choke.

Refugio County

Refugio field: Houston Oil Co. No. 45 Rooke, 6,208 feet, 195 bbls., one-eighth inch choke. Tomoconnor field: L. A. Nordan No. 12-B O'Connor, 5,918 feet, 563 bbls., quarter-inch choke.

San Patricio County

East White Point field: Plymouth Oil Co. No. 1 Brigham, perforated casing 5,659-63 feet, 124 bbls., 7/64-inch choke. Plymouth Oil Co. No. 1-A Cole, perforated casing 5,665-68 feet, 5 bbls. per hour, 7/64-inch choke. Plymouth Oil Co. No. 2 Owens, 5,686 feet, 5 bbls. per hour, 7/64-inch choke. Plymouth field: Plymouth Oil Co. No. 10-C Welder, perforated casing 5,607-11 feet, 7 bbls. per hour, 9/64-inch choke.

Webb County

Oilton field: Gypsy Oil Co. No. 11 Leyendecker, sand 2,000-04 feet, 128 bbls. pumping.

Zapata County

Charco Redondo field: E. D. Mathis No. 23 Garcia, 550 feet, abandoned. Mirando Valley field: Buffalo Oil Co. No. 2 Lopez, sand 1,875-83 feet, 80 bbls. jetting.

Starr County

Escobas field: Transwestern Oil Co. No. 19-A Trevino, 1,410 feet, 20 bbls. pumping.

Victoria-Calhoun Counties

Heyser field: George Echols No. 13 W. H. Bennett, perforated casing 6,031-34 feet, 139 bbls., 7/64-inch choke. Humble Oil & Refining Co. No. 22-A P. H. Welder, 5,454 feet, 276 bbls., five-sixteenths inch choke.

Canadian Gasoline Figures, Sales, Imports, Exports

OTTAWA, Ontario.—Sales of gasoline in Canada continue to show an upward trend in comparison with 1937, according to the monthly figures compiled by the federal department of trade and commerce. Of seven provinces reporting in March, five, including Ontario and Quebec, showed gains for the month and for the three months' period.

Imports into Canada of natural casinghead, compression or absorption gasoline lighter than .6690 gravity in April were 1,891,294 gallons valued at $128,031 compared with 439,350 gallons worth $21,077 in March. Imports of gasoline lighter than .8236 specific gravity were 1,895,855 gallons valued at $156,670 in April against 1,786,475 gallons worth $154,203 in March. All imports in both cases were from the United States.

Exports of gasoline and naphtha from Canada in April were 16 gallons valued at $7 against 541,597 gallons valued at $42,490 in March.

Oklahoma Operations

By
DAL DALRYMPLE

Curtail Production Nearly to Allowable for the State

Oklahoma crude oil production was curtailed almost to the allowable in the past week, the state touching a low of 408,450 bbls. per day with Oklahoma City producing 95,225 bbls., a curt of nearly 11,000 bbls. a day, and the Greater Seminole area falling about the same amount. Altogether the cut in crude output was 37,400 bbls. a day.

Saturday, June 25, was the thirty-seventh anniversary of the discovery of oil in the Tulsa district. On that date in 1901 Drs. Fred S. Clinton and J. C. W. Bland, drilling on the Sue Bland farm at Red Fork a few miles from the present center of the city of Tulsa, completed a well said to have made 100 bbls. a day. It is still producing.

The interesting test of Sinclair Prairie Oil Co. No. 1 Crews in SW cor. NE section 27-16-1, eastern Logan County, was acidized with 5,000 gallons at a total depth of 5,233 feet. It flowed four hours after the treatment and was then shut in. It increased the potential flow of the well from about 227 bbls. a day to 2,080 bbls. per day.

W. A. Delaney No. 2 Starrett, NW SE NE section 21-5-1, Pontotoc County, swabbed 6 bbls. of oil per hour from Viola lime.

Sinclair Prairie Oil Co. will resume drilling in No. 1 Felts NE cor. section 36-6s-2w in Love County. The hole has been plugged back after the casing was cut off close to the bottom and drilling will resume when cement sets. It is a 7,000-foot test.

The Texas Canadian Oil Corp., which operates in Louisiana and other states, has entered Oklahoma and announces its first test will be a wildcat in Noble County about 5 miles southeast of the Billings pool. It will be known as No. 1 Frank Schultz, NE NE NE section 29-23-1w.

Seventeen oil wells were completed in Oklahoma in the past week with a total initial production of 4,317 bbls. Five gas wells were completed and 10 tests were dry and abandoned.

Seminole Area

W. B. Osborne No. 1-A Jones, NE NW SW section 33-5-8, Seminole County found Gilcrease sand at 2,534-42 feet and pumped 150 bbls. initially without a shot. The oil is 40 degrees in gravity. The well flowed 220 bbls. naturally when it came in earlier in the month. Atlantic Refining Co. No. 4 Damron, SW NE NW section 22-6-6, Traugh pool, flowed 561 bbls. in 24 hours and later 460 bbls. in 24 hours while tubing was being run to the bottom. It was choked down to 4 bbls. per hour, producing from Viola lime at 3,489-94 feet. It had not been acidized.

Sinclair Prairie Oil Co. No. 2 Tennison, NE SE NW section 22-6-6, found Viola lime at 3,543-73 feet. It was acidized with 2,000 gallons and flowed 410 bbls. of net oil in five hours and 15 minutes.

Magnolia Petroleum Co. No. 5 Richardson, NE SW SW section 15-7-4, St. Louis district, Pottawatomie County, had Hunton lime at 3,648-3,720 feet, and after a 1,500-gallon acid treatment pumped 26 bbls. of oil and 35 bbls. of water in 24 hours.

Sinclair Prairie Oil Co. No. 3 Gilbreath, SW SE SE section 25-7-4, found Simpson sand at 4,211-86 feet. Using a Reda pump it produced 414 bbls. of oil and 1,500 bbls. of salt water in 24 hours and the following day 395 bbls. of oil and 1,500 bbls. of salt water. Two acid doses had been given the well, one of 2,000 gallons and the other of 5,000 gallons.

Welden W. Hall No. 2 Dees, SW SW NE section 11-8-6, Seminole County, was dry and abandoned at 3,522 feet.

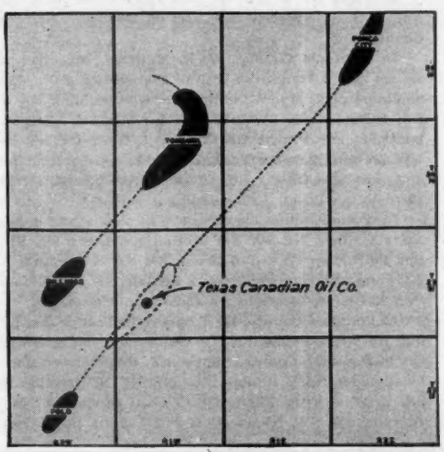
J. D. Campbell No. 1 Mary, SW SE SW section 8-9-7, was completed as a 25-bbl. well from sand at 3,377-3,403 feet.

W. C. McBride, Inc., No. 2 Haulsee, NW SW SW section 8-9-7, East Seminole pool, was shot with 10 quarts at 3,474-94 feet and flowed 100 bbls. a day through tubing with 1,000,000 feet of gas.

Magnolia Petroleum Co. No. 2 McMoran, NE SW NW section 32-11-5. Pottawatomie County, had second Wilcox sand at 4,872 feet, total depth 4,902 feet, and was completed as a salt water disposal well.

Oklahoma County

Stahl Petroleum Co. No. 2 Slaughter, 100 feet from N and 330 feet from W lines of SW quarter section 15-12-3w, Oklahoma City field, which topped Siliceous lime at 6,410 feet, total depth 6,510 feet, and after an acid treatment flowed 1,040 bbls. of oil in 24 hours through tubing, was beaned down to 325 bbls. per day through a quarter-inch tubing choke. The production was cutting 5 per cent.



Texas Canadian Oil Co. will drill a wildcat in NE NE NE section 29-23-1w, Noble County, southeast of the Billings pool

Kay County

Clarke C. Nye No. 1 Minnie Willin, SE SE SW section 24-27-4, Kay County, a wildcat, was dry and abandoned at 3,048 feet. It had been shot with 30 quarts at 3,000-15 feet.

Lincoln County

Wilcox Oil & Gas Co. No. 14 Sac and Fox, 1,038 feet from S and 965 feet from W lines of NW quarter section 15-14-6, Lincoln County, got Prue sand at 2,918 feet, total depth 3,515 feet. It was shot with 105 quarts and flowed 100 bbls. per day of 46-gravity oil, and 1,500,000 feet of gas.

Summit Drilling Co. No. 2 Erwin, SW SW SW section 35-15-2, flowed 375 bbls. through tubing in 24 hours. It had been shot with 12 quarts at 5,047-65 feet.

Creek County

Beal & Berryhill No. 1 McCauley, SW SE SW section 9-17-10, Kellyville district, Creek County, was dry and abandoned after the hole filled with water from Wilcox sand at 3,030-44 feet.

L. B. Jackson No. 1 Hagan, NW SE NW section 25-18-9, topped Wilcox sand at 3,037 feet, total depth 3,061 feet, and flowed 806 bbls. in 96 hours.

Cash Theodore No. 1 Carr, 330 feet S and 165 feet W of SE cor. section 26-18-9, was a hole full of water from Wilcox sand at 3,197-99 feet and was abandoned.

Sinclair Prairie Oil Co. No. 6 Oates, 785 feet from S and E lines of NE quarter section 14-19-9, flowed 20 bbls. per day from Cleveland sand at 1,222-81 feet.

Pawnee County

Sinclair Prairie Oil Co. No. 7 Berger B, NW NE NE SE section 17-21-8, flowed 25 bbls. per day from Skinner sand at 2,103-19 feet.

O. O. Owens and others No. 1 Riddle, a wildcat 1,320 feet N and 440 feet W of C section 8-23-5, was dry and abandoned at 3,390 feet.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending June 25, and for the preceding week, was as follows:

	Barrels	
	June 25	June 18
Allen	6,150	6,750
Billings	3,775	4,750
Burbank	6,500	7,525
South Burbank	9,550	9,825
Balance Osage	17,300	18,500
Blackwell district	4,050	4,425
Bristow-Slick	6,500	7,150
Chandler	1,750	1,975
Crescent	3,850	3,950
Cromwell	2,750	3,175
Cushing-Shamrock	9,275	10,750
Duncan district	3,525	3,700
Edmond	4,025	5,250
Fish	2,750	3,150
Fitts	39,800	40,950
Jesse	2,175	2,300
Graham	3,875	4,025
Gray	875	925
Healdton	8,225	8,750
Hewitt	3,550	3,650
Keokuk	3,275	4,625
Konawa	1,075	1,275
Lucien	7,075	7,175
Moore	4,250	3,575
Oklahoma City	95,225	106,100
Olympic	4,800	5,625
Ramsey	1,425	1,000
Sasakwa	1,175	1,475
Sholem-Alechem	2,550	2,625
Seminole district:		
Bowlegs	7,825	8,100
Carr City	3,175	3,475
Dora	4,225	4,875
Earlsboro	4,250	4,675
South Earlsboro	425	500
East Earlsboro	4,375	4,750
Little River	6,125	6,925
East Little River	650	850
Maud	450	650
Mission	1,200	1,450
Seminole	6,225	7,325
East Seminole	1,250	1,650
Searight	2,525	2,625
Total Seminole	42,700	47,850
St. Louis-Pearson	17,750	19,925
Tatums	3,225	3,500
Tonkawa-Garber-Thomas	3,275	4,200
Wewoka	2,025	2,300
Yale-Jennings	3,375	3,625
Other pools	75,000	79,700
Total Oklahoma	408,450	446,050

Osage County

Pure Oil Co. No. 107, 945 feet S and 362 feet E of C section 9-23-8, Osage County, an old well deepened, pumped 20 bbls. in 18 hours, and pumped off. It produced from sand at 2,375-84 feet, total depth.

North Avant Unit No. 8, 200 feet S and 800 feet E of C section 31-24-12, deepened from 1,723 feet to 1,754 feet, was shot with 20 quarts at 1,723-50 feet and made a small oil well with a lot of water. It may be good for 2 bbls. per day.

North Avant Unit No. 14, 100 feet N and 660 feet W of C section 31-24-12, deepened from 1,691 feet to 1,698 feet was recompleted as a half-barrel well.

Indian Territory Illuminating Oil Co. No. 455, 1,300 feet N and 250 feet E of SW cor. section 29-26-11, had Siliceous lime at 2,118-26 feet. It produced 1,500,000 feet of gas but the hole filled with water and was plugged back to 1,900 feet and acidized through casing perfora-

tions at 1,845-68 feet. It is good for 1,500,000 feet of gas per day.

Caddo County

Magnolia Petroleum Co. No. 3 Edwards, SE SW SW section 25-6-10w, Cement field, Caddo County, was completed in sand at 3,387-95 feet, total depth 3,402 feet and flowed 123 bbls. initially, later dropping to about 87 bbls. per day.

Carter County

R. E. Owens No. 3 McClish, 150 feet from N and 210 feet from E lines of NW quarter section 30-2s-3w, Milroy district, Carter County, found sand at 340-55 feet and is a 1¼-bbl. well producing 25-gravity oil.

Jefferson County

Long, Yingling & Louck No. 30 Seay, 150 feet N and E of C section 3-7s-5w, Jefferson County, made an 87-bbl. pumper at 1,257-75 feet, which pay had been shot with 20 quarts. The oil has a gravity of 35.8 degrees.

Pontotoc County

Anderson & Prichard No. 1 Mayer, SE SE SW section 19-3-8, Pontotoc County, a wildcat, was a hole full of water and abandoned in Cromwell sand topped at 1,385 feet, total depth 1,412 feet.

Haskell County

Utilities Producing Corp. No. 1 McCurtain, 760 feet N and W of C section 28-8-20, Haskell County, found a gas sand at 710-80 feet, total depth 790 feet, and is a 250,000-foot gas well with rock pressure of 225 pounds.

Okmulgee County

Buell, Inc., No. 2 Johnson, SW NE SW section 4-13-11, Tiger Flats district, Okmulgee County, was dry and abandoned at 3,210 feet. It had dry Wilcox sands at 3,190-97 and 3,205-10 feet, and the hole filled with water at 3,268 feet, total depth.

Vierson and others No. 1 Badger, C W half NW NW section 6-14-13, Morris district, is a 20-bbl. pumper from sand topped at 2,106 feet, total depth 2,166 feet.

Price & Warner No. 3-A E. S. Warner, NW NE SE NE section 21-14-14, Bald Hill district, was shot with 80 quarts at 627-45 feet, total depth 653 feet, in sand, and made a 3-bbl. pumper.

C. E. Best and others No. 1 Jim Marshall, NE NE NW section 28-15-12, North Beggs district, total depth 2,726 feet, was plugged back and shot with 90 quarts at 2,195-2,230 feet and with 20 quarts at 2,130-40 feet and produced 20 bbls. per day on the pump. Finance Oil Corp. and others No. 1 Woodling, NW NW NE section 28-15-12, is a 5-bbl. well on the pump from pay at 1,544-83 feet, shot with 100 quarts.

B. H. Young No. 4 Miller, CWL NW SE section 5-15-14, Bald Hill district, was dry and abandoned at 1,658 feet. Sand at 1,575-81 feet opened up a hole full of water.

Creek County

Klingensmith No. 6-A Brown, 220 feet S and 660 feet E of C section 5-16-11, Pickett Prairie district, Creek County, made a 500,000-foot gas well from sand topped at 518 feet, total depth 542 feet.

Okla Oil Corp. No. 12 Maxwell, 750 feet N and 920 feet W of SE cor. section 8-16-12, Mounds district, was dry and abandoned at 2,908 feet. It penetrated Turkey Mountain sand at 2,560-65 feet and topped Arbuckle lime at 2,600 feet.

Muskogee County

O. K. Jackson No. 1-A Smith, SW NE NE section 23-16-15, Muskogee County, was dry and abandoned at 1,147 feet.

New Operations

Jones & Robberson, deepening No. 1-A Sadler, SW cor. NW NW SE section 30-2n-4w, Garvin County, from 580 feet, were drilling at 950 feet.

B. Minnich No. 1-A McLendon, SW cor. SE section 4-3s-5w, Stephens County, was drilling at 340 feet.

Sun Oil Co. had machine in to start No. 19 Mullin-A, SW SW NE section 4-4s-3w, Carter County.

Louis Sikes made a location for No. 7 Mulkey, SW NE NE, Stephens County.

Ray Stephens, Inc., had cellar dug for No. 5 Griffin, SW SW NE section 27-6n-10w, Caddo County.

O. P. Burnham made a location for No. 2 Elias, NW NE SE section 6-1s-19w, Tipton pool, Jackson County.

Bridwell Oil & Gas Co. was rigging up rotary for No. 41 Seay, SW NW NW section 29-6s-5w, Jefferson County.

In Seminole County, W. P. McBride, Inc., had rig up for No. 3 Haulser, SW NW SW section 8-9-7, East Seminole pool. Myers Drilling Co. was building rig for No. 1 Busby, SE SW NW section 33-5n-8e, Allen district. Sinclair Prairie Oil Co. No. 4 Tennison, NW SE NW section 22-6n-6e, Traugh pool, had cellar and pits dug. Southern Oil Co. No. 1 Rainey, NW NE SE section 12-7n-5e, a wildcat, was spudding.

In Pottawatomie County, E. W. Jones and others No. 1-A Hines, NE SW NW section 22-7-4, is a rig. Phillips Petroleum Co. No. 5 Fried, NE NE NE section 23-7-4, and same company's No. 2 LeClair, SE NW NE section 23-7-4, are locations for Calvin sand tests.

In Pontotoc County, H. R. Moore has cellar and pits dug for No. 1 Payne, SE NW SE section 16-4-4, a wildcat in Pontotoc County. Simpson & Roodhouse made a location for No. 2 Illinois Life, NE NE NW section 28-2-6, in West Fitts. Skelly Oil Co. had rig up for No. 5 Ingram, SW SW NW section 23-2-7, Fitts pool. Continental Oil Co. had cellar dug for No. 1 Brown, NW SW SW section 7-17-8e, Jesse pool. Magnolia Petroleum Co. No. 24 Simpson, SE NE NE section 29-2-7, in the Fitts pool, an old Cromwell sand well, was shot in that sand at 2,518-72 feet with 100 quarts and it swabbed and flowed 204 bbls. in 24 hours. Continental Oil Co. plugged back an old hole from 4,593 feet, No. 2 Brown, NW NW NE section 11-1n-7e, and shot it through casing perforations at various levels up to 808-823 feet, but developed only 50,000 feet of gas, and abandoned the hole.

In the Bowlegs pool in Seminole County, Texas Co. deepened an old well, No. 2 Rich, SW SW NE section 14-8-6, from 4,256 feet to 4,475 feet and then plugged back and acidized above 4,234 feet, but results were little and the hole was abandoned.

In Creek County, Whitten & Leonard spudded No. 1 Samuels, CSL SE NW section 17-18-12.

In Okmulgee County, J. W. King made a location for No. 1-A Henderson, SW cor. NE NW section 6-14-13.

In the Ramsey pool in Lincoln County, E. H. Moore, Inc., and Texas Co. were rigging up No. 1 Means, NW NE NW section 19-18-2, a south offset to the Ramsey community block. Mudge Oil Co. had rig up for No. 1 Potter, SW SW NE section 10-14-6, Sac and Fox area. Wilcox Oil & Gas Co. made a location for No. 16 Sac and Fox, SE NE SW section 15-14-6, and had rig up for No. 1 Terry, NE SE SE section 9-14-6.

In Lincoln County, Universal Oil, Gas & Mining Co. had rig up for No. 1 School Land, SE cor. SW section 13-17-1w.

In Osage County, W. R. Denman made a location for No. 4, 1,000 feet from N and 857 feet from W lines of NE quarter section 34-29-11.

La.-Ark. Fields

(Continued from Page 86)

Deep Test Junked

This week also marked final operations on another exploratory test. The Union Producing Co. No. 2 Brownfield, located in the Sugar Creek field, one of the deepest operations to be drilled in North Louisiana, was junked and abandoned at a total depth of 10,661 feet with the old total depth at 10,759 feet. The test, drilled by Union Producing Co. and Standard Oil Co. of Louisiana down to a total depth of 10,000 feet, at which point the Standard withdrew, was a "tight" well for several weeks. Troubled with a crooked hole and a fishing job, operators plugged back to sidetrack the junk at 10,500 feet. A second Sugar Creek test is being started by the company, in No. 1-A Simms, north of the abandoned No. 2 Brownwood.

South Arkansas

Two developments of interests in South Arkansas occurred during the week. The Buckner field of northwestern Columbia County and eastern Lafayette County was extended slightly to the west by completion of a good producer. The Standard Oil Co. of Louisiana, which controls all production to date in the field, completed No. 2 McKean, in the SW cor. SW SE section 7-16-22. The well made an initial production of 122 bbls. in three hours through open tubing, after which it was placed on a 7/64-inch choke. Tubing pressure was recorded at 750 pounds and casing pressure was 900 pounds. Total depth in lime is 7,275 feet.

North of the Buckner field, a test of considerable importance was announced. The wildcat is Texas Canadian Oil Co. No. 1 Stocks, located 330 feet from the northwest corner of section 9-15s-22w, in Nevada County, 6 miles north of production in the Buckner pool. The wildcat is slated for a Smackover lime test, and will be watched with interest. At the same time the company announced location for a second test, No. 1 Felt in the NE SE section 8-15-22, which will be a shallow test.

In De Soto and Sabine parishes, operations disclosed no important developments during the week. At Blue Lake, the F. W. Martin Drilling Co. has plugged back from 4,508 feet to 3,500 feet to test a show at 3,545-75 feet. The De Soto test of interest, S. S. Alexander No. 1 Stoll, north of the Logansport gas area, acidized and tested salt water and a show of oil at a total depth of 5,453 feet and was swabbing.

Taber Crude for Vancouver

TABER, Alberta.—The C.P.R. has set a tentative freight rate for shipments of Taber crude to Vancouver, British Columbia, which is expected later to be accepted as basis for a settled tariff.

PRODUCING FROM 11,302 ft.

Drilling mud conditioned all the way down by LINK-BELT Vibrating Screen

● Union Oil Company's Kernco 1-34, pictured here as the discovery well of Rio Bravo field, Kern County, Calif., made the world's deepest production at 11,302 ft. The Link-Belt Vibrating Screen hook-up, pictured below with Walt Heathman, engineer, and Driller Hutchins of Union Oil, presents a typical close-up scene on important drilling jobs these days, particularly on record depth jobs. Depth records change often, but the record of this pioneer drilling mud conditioner, with its many exclusive advantages, remains outstanding in oil fields of the world. Ask for Folder No. 1772.

LINK-BELT COMPANY

Philadelphia Los Angeles NewYork Dallas Houston Tulsa

LINK-BELT Vibrating SCREEN

FEDERAL REGULATION

(Continued from Page 33)

eral Power Commission to regulate such business. The act by its own terms, however, does not apply to retail sales in interstate commerce, to local distribution of natural gas, or to the production or gathering of natural gas.

The act provides that all rates shall be "just and reasonable," and that no gas company shall grant "any undue preference or advantage" to anyone. For example, the commission has power to prevent unreasonable differences in gate rates to nearby towns. The commission is given the power to prescribe "just and reasonable" rates.

In order to arrive at a fair rate, the commission may investigate the actual cost of the property of every natural gas company, its actual depreciation, and its fair value; may require an approved depreciation policy; may examine all records of the gas companies subject to the act as well as pertinent records of any persons or corporations who control such companies; and may prescribe the system of accounting to be followed. The commission also may investigate the cost of production or transportation of natural gas in cases where it has no authority to establish rates. Rates must be kept on file with the commission open to public inspection, and 30 days' notice must be given by every gas company before a new rate schedule is put into effect. All new rates (except wholesale industrial rates) may be suspended for a period not to exceed five months pending inquiry by the commission into their reasonableness.

May File Complaints

Any state, municipality, state commission, or gas distributing company may file a complaint before the Federal Power Commission, or the power commission may investigate any rate upon its own motion. In proceedings before the commission, technical rules of evidence may be abandoned in favor of informal hearings. Appeals from the orders of the commission may be taken to the federal Circuit Courts of Appeal. On such appeals, the facts as found by the commission are conclusive if supported by "substantial evidence," but if the evidence is deemed insufficient by the Circuit Court, new evidence may be ordered to be taken before the commission. Orders of the commission may be enforced by mandamus and prospective violations of the act may be enjoined by the federal District Courts. Criminal penalties also are imposed.

In addition to its rate making powers, the commission has been authorized to prohibit the exportation and importation of natural gas without its permission; permission will be granted, however, unless the proposed shipments "will not be consistent with the public interest." Also, natural gas companies subject to the act may not construct new lines into any market in which natural gas already is being delivered by another gas company, and may not acquire or operate any such facilities without first obtaining from the commission a certificate of public convenience and necessity. The commission also, if it wishes, may order any gas company to extend its facilities into new markets or to improve its existing transportation facilities. Finally, no gas company may abandon any of its facilities without the permission of the commission

It is seen that this act contemplates the regulation of that portion of the natural gas industry which now escapes regulation because of the constitutional doctrine that interstate commerce must be free from local control.

The act as written in all probability is constitutional. It is similar to certain of the railroad regulatory provisions of the Interstate Commerce Act, and also to Title II of the Public Utility Holding Company Act of 1935 which regulates interstate shipments of electricity, both of which clearly are constitutional. The regulatory power of congress over the interstate transportation of natural gas (or any other commodity) under the commerce clause of the federal Constitution is plenary. The only important limitation on this power, in this case, is the due process clause of the Fifth Amendment. Businesses affected with a public interest, however, may not take advantage of this limitation, and the act clearly states that the interstate transportation and sale of natural gas is affected with a public interest.[4]

The act makes no provision for the establishment of minimum and maximum rates other than a general authorization to determine and fix reasonable rates. Furthermore, it does not seem to be stated explicitly that the commission has power to fix temporary rates. In this regard, the history of the Interstate Commerce Commission and the railroads is pertinent. The original Interstate Commerce Act provided, as does the Lea Act, that rates be just and reasonable and that no preference be given. Yet the effectiveness of the Interstate Commerce Commission was greatly restricted by the courts until minimum and maximum rate-making powers were given expressly in later acts. Perhaps the power commission's rate-making powers also will be curtailed because of the absence of such provisions.

Some criticism has been directed at the five-month suspensory provision as to rates, the claim being made that this period is too short. It is true that state commission and Interstate Commerce Commission rate investigations frequently are in process for several years; therefore, five months may not be enough time for a thorough investigation of many rate structures. But the natural gas act does not contain a provision that gas companies may be required to furnish bonds to cover possible refunds in the event that rate cases lasting longer than five months are decided adversely to the companies. This should be adequate to protect companies as well as individual consumers.

The power of the commission over the extension and abandonment of facilities also has been widely criticized. It is analogous to a similar provision in the Interstate Commerce Act. It has been the experience of railroads that the authority to abandon unprofitable lines has been granted by the Interstate Commerce Commission with reluctance. Perhaps gas companies will suffer a similar fate. Furthermore, it should be pointed out that the Federal Power Commission may require natural gas companies to sell gas to any municipality and even to extend their lines in order to do so. Thus can the commission encourage municipal operation of distribution facilities, conceivably even to the extent of direct competition with privately owned distribution systems.

Criticism Heard

Criticism also has been directed at the requirement of a certificate of convenience and necessity before new competing lines or distributing facilities may be constructed. Objection is made in part to governmental administrative control over expansion policies of gas companies, a function of management, and in part to visualized future conflicts between state commissions and the Federal Power Commission wherein a local commission may wish a company to enter yet the power commission will not grant a certificate, and vice versa. As the natural gas act does not require the federal commission to cooperate with local commissions, the possibility of real conflict exists. When the Interstate Commerce Commission obtained jurisdiction over railroads, existing state commissions gradually were shorn of their power through the development of the doctrine that intrastate rates were subject to federal control because they indirectly affected interstate rates and commerce. It is thus possible that in the natural gas industry state commissions now will serve a less important role. This is especially true as fixing wholesale rates usually defines within narrow limits retail rates.

It is interesting to note that the Lea Natural Gas Act has not been opposed strenuously by gas companies. This itself is indicative that federal regulation probably will not prove unduly severe. Perhaps the chief objection by gas companies to the act is the power of the commission over construction of new lines and abandonment of old facilities.

Regulation of this sort by governmental agencies is not new. As indicated, the Interstate Commerce Commission regulates interstate rates of railroads, common carrier pipe lines, common and contract motor vehicle carriers, and intercoastal shipping lines. The Federal Power Commission already regulates wholesale rates of interstate transmission of electric power. Federal regulation of interstate gas companies under the Lea Natural Gas Act is but another example of the trend toward regulation of the interstate phases of industry by federal agencies.

Bibliography

1. Pennsylvania Gas Co. v. Public Service Commission, 252 U. S. 23 (1920).
2. Missouri v. Kansas Natural Gas Co., 265 U. S. 298 (1924).
3. See Southwestern Bell Telephone Co. v. Public Service Commission, 262 U. S. 276 (1923).
4. For a more complete discussion of the constitutionality of the act, see brief by Solicitor of Federal Power Commission, Hearings, April, 1936, Natural Gas, Subcommittee of Committee on Interstate and Foreign Commerce, Seventy-fourth Congress, second session.

Power Commission Chairman Welcomes Gas Regulation

WASHINGTON, D. C.—Referring to the enactment of the Lea Natural Gas Act, Clyde L. Seavey, acting chairman of the Federal Power Commission, said in a letter to Senator Bulkley, of Ohio:

"For the first time in the history of this country natural gas is placed under effective public regulation. Because this vital public necessity flows in interstate commerce the states have been powerless under the constitution to regulate its distribution and sale in the interests of the consuming public.

"The assertion of congressional authority over the interstate, wholesale rate and the grant to the Federal Power Commission of authority to investigate and ascertain the actual legitimate cost of gas properties, depreciation and other necessary facts for rate-making purposes will make it possible for the state regulatory commission for the first time to exercise effectively its power to fix reasonable distribution rates to the ultimate consumer."

Mr. Seavey emphasized that the intention of the act was to "secure the sale of natural gas in interstate commerce at the lowest possible reasonable rate consistent with the maintenance of adequate service in the public interest."

Alberta Government Seeks to Reopen Turner Valley Inquiry

CALGARY, Alberta.—The Alberta provincial government has formally asked G. H. Sedgwick, chairman of the federal tariff board, to reopen the inquiry into the Turner Valley crude oil marketing situation. The inquiry, begun in January, was adjourned in February to permit a conference between producers and railway representatives in regard to freight rates on Turner Valley crude to Ontario refineries.

The Alberta Petroleum Producers Association is studying various projects designed to widen the markets for Turner Valley crude. Tentative arrangements have been discussed for shipment of 3,000 bbls. of crude per day to Imperial Oil, Ltd., at Sarnia and 2,000 bbls. to British American Oil Co. at Toronto, conditional on satisfactory freight rates being secured.

The association will also ascertain the cost of pipe lines to Port Arthur, at the head of the lakes, and Vancouver, British Columbia, on the basis of daily shipments of 35,000 bbls. a day over a 15-year period.

If satisfactory freight rates on shipments to Ontario cannot be secured by negotiation, it is proposed to apply to the Dominion Railway Commission to fix a rate, or to ask the federal government for a statutory rate.

Application is also being made to the Alberta Public Utilities Commission to fix pipe line rates on crude to Calgary, determine the line loss and have the pipe line declared a common carrier.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, June 25.—Pipe line runs of crude and naphtha from the Turner Valley field to the Calgary refineries in May totaled 448,363 bbls., compared with 379,213 bbls. in April. British American Oil Co. took 538 bbls. of naphtha and 141,651 bbls. of crude, and Imperial Oil Refineries took 28,575 bbls. of naphtha and 277,599 bbls. of crude. Deliveries for the five months of 1938 total 1,991,814 bbls.

West Central Completion

In section 5-19-2w5, West Central Turner Valley, Vulcan-Brown Petroleums No. 1, LSD 10, finished 442 feet in the Madison at about 7,430 feet, rating around 1,920 bbls. a day, was given acid treatment. When put on the separator under 155 pounds back pressure it developed a flush of 429 bbls. in the first hour and 2,656.41 bbls. in the first eight hours, or at the rate of 6,797 bbls. a day. Actual production in the first 24 hours was 5,760 bbls., the largest flush production in the history of the field. While clearing itself of acid, the fluid was diverted through the flare pipe and ignited, the fare, the most spectacular ever seen in Turner Valley, being visible more than 25 miles.

Completion of Vulcan-Brown Petroleums No. 1 as a record producer comes after the failure of three successive West Central tests, Dalhousie Oil Co. No. 8, Mercury Oils No. 8 and Brown Oil Corp. No. 3. These earlier tests were all farther north or east and apparently not far enough west to tap the west flank crude area. Vulcan-Brown No. 1 extends the crude producing area almost a mile north of the nearest previous producer. The location is approximately 11 miles southeast of the Model Oils crude producers in North Turner Valley, and this further extension of the South Turner Valley crude area strengthens the supposition that further crude discoveries may be made in the intervening area, much of which lies west of the old Central Turner Valley naphtha field.

Vulcan-Brown Petroleums No. 1 was sponsored by R. A. Brown, Sr., and the Brown-Moyer-Brown interests. Calgary & Edmonton Corp. has a 12½ per cent royalty interest. Approximately 45 per cent of the stock of Vulcan-Brown Petroleums is held by British American Oil Co., while Vulcan Oils, Calmont Oils, United Oils, McDougall-Segur Exploration Co., and Alberta Pacific Consolidated Oils also hold stock interests. Preparations are now being made for official tests of potential.

Another Big Producer

In section 16-18-2w5, Southwest Turner Valley, Frontier Royalties No. 1, LSD 11, sponsored by Anglo-Canadian Oil Co., for a few days prior to completion of the Vulcan-Brown well held the production record for the field. Frontier No. 1, finished at 6,915 feet after getting the lime at 6,489 feet, was acidized and flowed 1,062 bbls. in the first five hours, or at the rate of 5,090 bbls. daily. It was then shut in for lack of storage. Government tests are being made. Natural production on a three-day test averaged 2,442 bbls. a day.

In section 29-18-2w5, Commoil No. 1, LSD 15, with 3,046 bbls. recorded open flow and 2,031 bbls. rated potential, was given a second acid treatment. It developed flush production at the rate of 5,424 bbls. a day, settling to 3,595 bbls. and was given a 2,397-bbl. potential. The gas flow was increased from 1,500,000 to 9,500,000 feet a day. Share Royalties No. 1, LSD 8, same section, was reacidized and is testing production. Model-Spooner Reward No. 2, S half LSD 1, same section, with production over 1,000 bbls. a day, is arranging to market its crude independently. Globe Royalties No. 1, LSD 7, finished at 7,403 feet after getting the Madison at 6,955 feet, was blown clear of fluid, tubed and acidized. It looks like a large producer.

In section 21-18-2w5, Barsac Royalties No. 1, LSD 12, finished 460 feet in the lime at 6,866 feet depth with natural production around 650 bbls. a day, was acidized, increasing its flow to about 1,400 bbls. Test for potential is being made.

In section 20-18-2w5, United-Brown Petroleum No. 5, LSD 1, finished at 7,303 feet after getting the Madison at 6,839 feet, has been acidized and is nearing production, with a large well indicated.

In section 17-18-2w5. Sundance Royalties No. 1, LSD 9, is completing test for potential. It started with 397 bbls. natural production and after acidizing flowed 3,377 bbls. in 24 hours. Potential is being taken by the new method, under which the well operates for 10 days at not less than the 36 per cent of temporary initial potential and the rated potential is two-thirds of the full open flow on the eleventh day. Coronation Royalties No. 1, LSD 10, same section, is below 7,228 feet after getting the lime at 7,102 feet.

In section 9-18-2w5, National Petroleum Corp. No. 2, LSD 14, is making around 400 bbls. a day from the upper lime after reacidizing and will shortly test for potential. It drilled into a recurrence of the Blairmore formation without reaching the main porous horizon of the lime.

Royalite Well

In section 32-18 2w5, Royalite Oil Co. No. 30, LSD 11, finished some time ago at 7,690 feet and averaging 501 bbls. a day natural production on a three-day test has been shut in for lack of storage facilities. It has been acidized and is waiting for official test of potential. It is believed to be an exceptionally large well. Location is the farthest west at which production has been developed in the west flank crude area, and approximately three-quarters mile west of the earliest crude producers.

West Flank Drilling

In section 5-19-2w5, West Central Turner Valley, Mercury Royalties No. 1, LSD 8, is below 6,108 feet in the hard formation immediately on top of the Madison limestone. Location is approximately one-quarter mile southeast of Vulcan-Brown No. 1 big producer, but the formations are about 700 feet higher. Royalite Oil Co. No. 33, LSD 2, same section, is below 3,927 feet.

In section 6-19-2w5, East Crest Oil Co. No. 4, LSD 8, is preparing to resume from 2,195 feet.

In section 32-18-2w5, Vantage Oils No. 1, S half LSD 12, is below 50 feet after cementing surface casing at 40 feet. Davies Petroleums No. 4, LSD 10, is resuming after running 10-inch casing to 2,335 feet. West Turner Petroleums No. 2, LSD 7, is in the Blairmore formation below 6,420 feet. West Turner No. 3, LSD 6, is resuming from 2,602 feet after rigging heavy-duty rotary equipment. British Colonial Oils No. 1, LSD 5, has resumed from 1,506 feet after a brief shutdown.

In section 29-18 2w5, Commoil No. 2, LSD 10, is below 5,259 feet. Command Oils No. 1, LSD 14, is rigging to resume from 810 feet. P. & H. Development Co. No. 1 Alco, LSD 13, is below 1,250 feet. Royalite Oil Co. No. 31, LSD 6, is in the Blairmore formation below 6,582 feet. Davies Petroleums No. 1 producer, LSD 2, is waiting for cable tool equipment to clean out in the lime.

In section 20-18-2w5, Consolidated Royalties No. 1, LSD 14, is in the Benton formation below 5,972 feet. Producers Crude Corp. No. 1, LSD 11, is standing at 3,028 feet, waiting for rotary outfit. Sunset Oils No. 2, LSD 7, is in the Lower Benton formation below 5,223 feet. York Oils No. 1, LSD 2, is in the Blairmore formation below 6,050 feet.

In section 17-18-2w5, Extension Royalties No. 1, LSD 14, is at 884 feet, waiting for rotary. Royalite Oil Co. No. 32, LSD 8, is below 6,121 feet after getting the grit beds marker at 5,325 feet.

In section 16-18-2w5, Brown Oil Corp. No. 5, LSD 12, is in the Belly River formation below 2,700 feet. Richwell Oil Co. No. 1, LSD 5, is below 2,085 feet. Royal Canadian Oil Co. No. 2, LSD 4, is in the Belly River formation below 2,940 feet, carrying 10-inch casing. Okalta Oil Co. No. 7, LSD 3, is below 3,050 feet.

In section 9-18-2w5, Marine Petroleums No. 1, LSD 11, has discontinued drilling at 1,330 feet and is dismantling its equipment. Location was immediately south of National Petroleum Corp. No. 2, which got a small production in the upper lime but drilled into a repetition of the Blairmore formation without reaching the main porous horizon. A new test will be drilled on other acreage. Barolls No. 1, LSD 3, is shut down at 63 feet.

In section 5-18-2w5, Theo. Grewer No. 1, LSD 14, is shut down at 203 feet. P. & H. Development Co. No. 1 C. & E., LSD 7, is in the Belly River formation below 185 feet.

In section 33-17-2w5, Davies Petroleums No. 3, LSD 7, is shut down at 3,245 feet waiting for rotary.

In section 16-17-2w5, Firth Petroleums No. 1, LSD 6, is shut down at 350 feet.

In section 33-16-2w5, Anglo-Canadian Oil Co. No. 2, LSD 2, is rigging. This will be the southernmost active test in the field, being 8 miles south of National Petroleum Corp. No. 2, the southernmost producer.

Okalta Deep Test

West of the crude area, Okalta Oil Co. No. 6, LSD 3, section 30-18-3w5, is in the Blairmore formation below 8,500 feet, with the Madison limestone expected at 9,400 feet.

In section 31-18-2w5, Anglo-Canadian Oil Co. No. 1, LSD 16, is below 1,410 feet.

North Turner Valley

In North Turner Valley, Phillips Royalties No. 1, LSD 16, section 16-20-3w5, is below 6,550 feet.

Home Oil Co. No. 2 Millarville, LSD 6, section 33-20-3w5, is below 3,220 feet.

Proration Increase

Effective June 17, the prorated allowable production of Turner Valley crude wells was increased from 30 to 37 per cent of potential. The previous cut from 44 to 30 per cent, effective June 1, was necessitated because storage facilities were overtaxed, owing to the rapid bringing in of new wells.

Testing Gas Wells

The annual tests by officials of the Alberta lands and mines department of gas-naphtha wells in Turner Valley started on June 15 and will continue to July 2. For testing purposes, the naphtha area is divided into zones, each zone test lasting three days, when open flow and rock pressures will be determined. The tests were first made several years ago in connection with provincial conservation measures, and information secured this year will be utilized by the new Oil and Gas Conservation Board in their policies for limiting gas wastage. Crude wells were not involved in the tests.

East Side Drilling

On the New Valley structure, northeast of Turner Valley, McLeod Oil Co. No. 1, LSD 4, section 6-21-2w5, is running special 5¾-inch casing to 8,400 feet preparatory to deepening after the winter shut down. Accumulated crude will be swabbed. Potential production from the upper horizons is estimated around 75 bbls. a day.

On the De Winton structure, Marquis Oils No. 1 Anglesey-Lakeview, LSD 1, section 22-21-1w5, is bailing preparatory to deepening from 4,500 feet. With removal of fluid, considerable gas has been released, and control head has been installed.

Tests in the Foothills

On the Pouce Coupe structure west of Peace River, Guardian Oils No. 1, section 7-80-12w6, has spudded and is below 175 feet with surface casing set. It is planned to drill to 4,000 feet, testing all potential oil horizons, the first being looked for around 800 feet.

On the Brazeau structure west of Edmonton, Home Oil Co. No. 1 Brazeau, LSD 16, section 7-43-17w5, is below 4,540 feet.

On the Ram River anticline west of Red Deer, Russell V. Johnson of Calgary is spotting location for Ram River Oils No. 1 on a 1,600-acre lease in unsurveyed territory 11 miles southwest of Phoenix. Drilling will start in the shales immediately overlying the lime, and production is anticipated at shallow levels. Ram River No. 1 will likely spud next month.

On the Kootenay dome west of Calgary, Roxana Petroleums No. 1, section 8-24-7w5, is deepening in the Devonian limestone below 3,801 feet, with considerable sulfur gas.

On the Highwood-Sinclair structure southwest of Turner Valley, Green Valley Oils No. 1 Banner, LSD 6, section 34-17-3w5, is in hard formation below 5,904 feet, and more than 544 feet in the Madison.

Border Fields

In the Taber field, southern Alberta, Plains Petroleum Corp. No. 4, LSD 14, section 25-9-17w4, is below 1,906 feet; No. 5, LSD 2, section 36-9-17w4, is below 225 feet. North Taber Royalties No. 1, LSD 7, section 10-11-15w4, is rigging. A geophysical survey crew is working in

(Continued on Page 114)

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S.T.R.	Depth	Status
Wilshire Oil, No 1 Gaviota, Santa Barbara	35- 5-33	4,497	sd. sh. drlg.
Montgomery, H. S., No. 1 Wagner, Capitan, S. Barbara	tideland	1,302	well P.B.
South Crude Oil, No. 2-191, Coal Oil Pt., S. Barbara	tideland	5,510	redrlg. 3,470
Hancock-Bush, No. 4 Hopkins, S. Maria, S. Barbara	30-10-33	3,550	sd. sh. drlg.
Moore, E. H., No. 10 Sugar, Santa Maria, S. Barbara	24-10-34	3,590	sd. sh. drlg.
G. & B. Oil, No 1 B. & G., Santa Maria, Santa Barbara	26-10-34	5,390	sd. sh. drlg.
Selegna Oil, No. 1 S. M., Santa Maria, Santa Barbara	26-10-34	5,257	sd. sh. drlg.
Signal Oil, No. 12 Yelkin, S. Barbara, Santa Barbara	26-10-34	4,958	pump. 730 b.d.
Union Oil, No. 2 Wheat, Santa Maria, Santa Barbara	22-10-34	3,945	sd. sh. drlg.
Union Oil, No 3 Vicente, Santa Maria, Santa Barbara	21-10-34	4,841	sd. sh. drlg.
Union Oil, No. 1-Nicolai, Santa Maria, Santa Barbara	28-10-34	5,195	sd. sh. drlg.
Sunshine Oil, No. 1 Girard, S. Maria, Santa Barbara	27-10-34	712	sd. sh. drlg.
Jones, F. E., No. 2 Wisconsin, S. Maria, Santa Barbara	27-10-34	4,657	pump. 470 b.d.
Standard Oil, No. 1 Cat Canyon, Santa Barbara	27- 9-33	5,529	redrlg. 5,374
O'Donnell, J. E., No. 1 Helen, Lompoc, Santa Barbara	8- 7-33	3,580	hd. sh. drlg.
Douglas Oil, No. 1, Los Alamos, Santa Barbara	8- 8-33	5,540	sd. sh. drlg.
Barnsdall Oil, No. 3 Tognazzini, Gato Rdg., S. Barbara	9- 8-32	2,200	O.S. drlg.
United West. Oil, No. 1, Los Olivos, Santa Barbara	16 -7-30	3,270	idle
Continental Oil, No. 1, Los Olivos, Santa Barbara	24- 8-31	2,646	dry; abd.
High Mesa Oil, No. 1 Butcher, Ojai, Ventura	16- 4-22	1,690	hd. sh. drlg.
Holly Dev., No. 1 Macrate, Ojai, Ventura	27- 4-23	161	sd. sh. drlg.
St. Louis Oil, No. 4 Pirie, Ojai, Ventura	18- 4-22	1,744	cleaning out
Rowe, W. G., No. 1 Johnson, Oxnard, Ventura	15- 1-22	4,728	idle
Texas Co., No. 5 Yale, South Mountain, Ventura	13- 3-21	5,641	gr. sd. drlg.
Merchants Pet., No. 1 Sespe, Ventura	1- 4-20	660	sd. sh. drlg.
Stalling & Senter, No. 1, Timber Canyon, Ventura	24- 4-21	866	sd. sh. drlg.
Section 20 Oil, No. 1, Sespe, Ventura	20- 5-19	1,610	reaming
Darby Oil, No. 1 Cohn, Moor Park, Ventura	7- 2-19	1,702	sd. sh. drlg.
C. C. M. Oil, No. 7 Oakgrove, Padre Canyon, Ventura	23- 3-24	1,981	sd. sh. drlg.
C. C. M. Oil, No. 21 Hobson, Rincon, Ventura	8- 3-24	4,533	cmtd. 4,455
Richfield Oil, No. 8-F Hobson, Rincon, Ventura	8- 3-24	2,836	redrlg. 2,618
Tide Water A., No. 19 V.L.W., Ventura Ave., Ventura	26- 3-23	9,525	O.S. drlg.
Tide Water A., No. 39 V.L.W., Ventura Ave., Ventura	24- 3-23	1,986	sd. sh. drlg.
Tide Water A., No. 75 Lloyd, Ventura Ave., Ventura	26- 3-23	5,782	sd. sh. drlg.
Tide Water A., No. 111 Lloyd, Ventura Ave., Ventura	27- 3-23	8,550	sd. sh. drlg.
Tide Water A., No. 127 Lloyd, Ventura Ave., Ventura	27- 3-23	5,635	recmtd. 5,630
Tide Water A., No. 7 Hartman, Ventura Ave., Vent.	22- 3-23	5,190	sd. sh. drlg.
Tide Water A., No. 11 McGonigle, Vent. Ave., Vent.	23- 3-23	6,386	hd. sd. drlg.
Shell Oil, No. 96 Taylor, Ventura Ave., Ventura	28- 3-23	5,386	sd. sh. drlg.
Shell Oil, No. 31 Edison, Ventura Ave., Ventura	20- 3-23	7,806	sd. sh. drlg.
Shell Oil, No. 37 Gosnell, Ventura Ave., Ventura	28- 3-23	8,618	P.B. 8,490
General Pet., No. 18 Barnard, Ventura Ave., Ventura	21- 3-23	5,697	sd. sh. drlg.
Amerada Pet., No. 5 Beer, Devils Den, Kern	22-26-19	8,297	redrlg. 7,297
Goodrun, George, No. 1 Baron, Devils Den, Kern	24-25-18	1,190	will deepen
Gibson Oil, No. 3 Alferitz, Devils Den, Kern	14-25-18	530	O.S. drlg.
Franco-Western Oil, No. 15, McKittrick, Kern	8-30-22	2,204	P.B. 2,196
Leyse & Sonne, No. 1 Pasadena, McKittrick, Kern	28-30-22	3,064	sd. sh. drlg.
Chico-Martinez Oil, No. 1 Holly, S. Belridge, Kern	1-29-20	1,020	rig. to pump
Randan Pet., No. 1 Theta, Lost Hills, Kern	3-26-20	1,625	cmtd. 1,535
Belridge Oil, No. 27-5 North Belridge, Kern	27-27-20	7,892	br. sh. drlg.
Belridge Oil, No. 35-26, North Belridge, Kern	35-27-20	8,671	O.S. drlg.
Tide Water A., No. 3-21, North Belridge, Kern	21-27-20	8,305	gr. sd. drlg.
Richfield Oil, No. 2 Belridge, North Belridge, Kern	22-27-20	6,770	br. sh. drlg.
Texas Co., No. 4 Martin, North Belridge, Kern	22-27-20	7,740	br. sh. drlg.
General Pet., No. 1 St. Helens, Belridge, Kern	12-28-20	1,400	rig. to pump
Pan-May Oil, No. 1 Coffee, Round Mountain, Kern	31-27-29	1,057	fish. D.P.
Shamrock Pet., No. 7 Coffee, Round Mountain, Kern	6-28-29	1,580	pump. 85 b.d.
Vedder, D., No. 6 Bell, Round Mountain, Kern	12-28-28	1,906	O.S. drlg.
Shell Oil, No. 20 Caldwell, Round Mountain, Kern	7-28-29	2,006	sd. sh. drlg.
Honolulu Oil, No. 46. Round Mountain, Kern	20-28-29	1,387	sd. sh. drlg.
McDonald & Dearin, No. 4, Kern Front, Kern	11-28-27	1,973	O.S. drlg.
Rubenstein, A. B., No. 1 Lerdo, Kern	20-28-27	3,302	pump. water
Fuhrman, Alfred, No. 25 Kern River, Kern	21-28-28	710	O.S drlg
Helm & Smith, No. 4A Kernco, Kern River, Kern	34-28-28	575	O.S. drlg.
Hast Oil, No. 3 Kern, Kern River, Kern	34-28-28	246	sd. sh. drlg.
Deene, G. W., No. 1 Poso, Mount Poso, Kern	26-26-28	1,077	sd. sh. drlg.
Shell Oil, No. 7 Mathews, Mount Poso, Kern	4-27-28	1,421	sd. sh. drlg.
Western Gulf Oil, No. 4 Sawyer, Fruitvale, Kern	27-29-27	3,474	P.B. 3,430
Texas Co., No. 1 Lowe, Fruitvale, Kern	7-29-27	4,198	sd. sh. drlg.
Mesa Pet., No. 1 Dixon, Fruitvale, Kern	23-29-27	3,115	O.S. drlg.
Hogan Pet., No. 11 Porter, Mountain View, Kern	29-30-29	4,990	sd. sh. drlg.
Johnson, G. W., No. 1 Brown, East Edison, Kern	33-29-30	1,163	idle
Stevens, R. W., No. 1, Caliente Creek, Kern	22-30-30	413	sd. sh. drlg.
Union Oil, No. 1 Berry, Arvin, Kern	15-31-29	6,135	pump. 25 b.d.
Petrex, Inc., No. 1 Edison, Arvin, Kern	32-31-30	5,190	sd. sh. drlg.
Continental Oil, No. 3-A, KCL, Wasco, Kern	8-27-24	5,886	cmtd. 5,505
Continental Oil, No. 1 Seaboard, KCL, Wasco, Kern	26-27-24	11,370	sd. sh. drlg.
Standard Oil, No. 8-1-B, KCL, Wasco, Kern	17-27-24	7,891	sd. sh. drlg.
Standard Oil, No. 1 Mushrush, Wasco, Kern	7-27-24	2,461	cmtd. 1,516
Superior Oil Co., No. 4 Wagner, Rio Bravo, Kern	35-28-25	11,385	O.S. drlg.
Superior Oil, No. 2 Geissinger, Bravo, Kern	35-28-25	11,180	sd. sh. drlg.
Superior Oil, No. 3 Geissinger, Bravo, Kern	35-28-25	6,395	sd. sh. drlg.
Superior Oil, No. 1 Anderson, Rio Bravo, Kern	35-28-25	11,608	flow. 6,000 b.d.
Superior Oil, No. 1 Heibling, Rio Braco, Kern	1-29-25	10,471	sd. sh. drlg.
Union Oil, No. 2-34 KCL, Rio Bravo, Kern	34-28-25	11,204	mill. 6,104
Union Oil, No. 3-34 KCL, Rio Bravo, Kern	34-28-25	10,940	sd. sh. drlg.
Union Oil, No. 4-34 KCL, Rio Bravo, Wern	34-28-25	1,509	cmtd. 1,509
Getty Oil, No. 2 Ramsey, Rio Bravo, Kern	35-28-25	8,280	sd. sh. drlg.
General Pet., No. 1 Wagoner, Rio Bravo, Kern	35-28-25	10,192	redrlg. 9,190
General Pet., No. 2 Wagoner, Rio Bravo, Kern	35-28-25	11,426	flow. 2,596 b.d.
Standard Oil, No. 18-1 KCL, Una, Kern	29-28-26	9,280	sd. sh. drlg.
Shell Oil, No. 83-35 KCL, McFarland, Kern	35-26-25	8,080	sd. sh. drlg.
White, C. C., No. 1 Armstrong, McFarland, Kern	9-26-26	2,396	sd. sh. drlg.
Tide Water A., Well No. 1, Pond, Kern	17-26-25	4,992	sd. sh. drlg.
Dilmar Oil, No. 1 Quinn, Jasmin, Kern	15-25-27	2,875	recmtd. 2,829
Stanard Oil, No. 11-15 KCL, Greeley, Kern	18-29-26	7,480	sd. sh. drlg.
Standard Oil, No. 12-5 KCL, Greeley, Kern	7-29-26	1,505	cmtd. 1,499
Continental Oil, No. 1-E KCL, Stevens, Kern	17-30-26	8,287	cleaning out
Standard Oil, No. 15-2 KCL, Canfield Ranch, Kern	27-30-26	7,660	sd. sh. drlg.
Shell Oil, No. 38-29-A KCL, Ten Section, Kern	29-30-26	8,220	cmtd. 7,895
Shell Oil, No. 32-32-B KCL, Ten Section, Kern	32-30-26	6,597	sd. sh. drlg.
Shell Oil, No. 58-20-B KCL, Ten Section, Kern	20-30-26	8,020	sd. sh. drlg.
Shell Oil, No. 32-13-A KCL, Canal, Kern	13-30-25	8,329	P.B. 8,285
Ohio Oil, No. 7-E KCL, Canal, Kern	14-30-25	6,596	sd. sh. drlg.
Ohio Oil, No. 8-A KCL, Buena Vista Lake, Kern	32-31-26	11,030	O.S. drlg.
Signal Oil, No. 5 Kendon, Midway-Sunset, Kern	35-32-23	1,701	pump. 40 b.d.
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern	33-11-23	8,464	redrlg. 8,394
Midway Peerless Oil, No. 16, Midway-Sunset, Kern	15-31-22	576	sd. sh. drlg.
Mascot Oil Co., No. 3 Midway, Midway-Sunset, Kern	36-32-23	1,404	will deepen
Surprise Oil, No. 3, Midway-Sunset, Kern	36-32-23	850	O.S. drlg.
National Oil, No. 18, Midway-Sunset, Kern	35-32-23	1,110	sd. sh. drlg.
Petrol Corp., No. 33-5 Reserve, Tejon Ranch, Kern	33-11-19	4,362	sd. sh. drlg.
Shell Oil, No. 4-26 KCL, San Emidio, Kern	26-11-22	9,824	fish. D.P.
Richfield Oil, No. 1 KCL, Wheeler Ridge, Kern	28-11-20	3,971	sd. sh. drlg.
Pure Oil Co., No. 1 SPL, Cantua, Fresno	31-18-17	10,862	redrlg. 10,098
Magnet Oil, No. 2 Fearon, Fresno	18-20-15	2,160	sd. sh. drlg.
Pet. Sec., No. 2 Gatchell, Turk, Fresno	18-20-16	6,850	test. O.S.
Jacalitos Oil, No. 1 Joaquin, Turk, Fresno	14-21-15	5,865	will deepen
Dauphin Dev., No. 1 Boone, Alcalde, Fresno	30-21-14	3,778	redrlg. 2,535
Wilcox, J. F., No. 6, Coalinga, Fresno	11-20-14	565	pump 5 b.d.
K. N. D. A., No. 67-20-J Kettleman North, Fresno	20-21-17	11,050	hd. sd. drlg.
K. N. D. A., No. 6-8-Q Kettleman North, Kings	6-22-18	8,719	flow. 3,916 b.d.
K. N. D. A., No. 38-8-Q Kettleman North, Kings	8-22-18	8,761	cleaning out
K. N. D. A., No. 27-16-Q Kettleman North, Kings	16-22-18	7,780	sd. sh. drlg.
K. N. D. A., No. 58-16-Q Kettleman North, Kings	16-22-18	8,090	sd. sh. drlg.
K. N. D. A., No. 47-18-Q Kettleman North, Kings	18-22-18	8,004	cleaning out
K. N. D. A., No. 43-20-Q Kettleman North, Kings	20-22-18	8,087	hd. sh. drlg.
K. N. D. A., No. 27-22-Q Kettleman North, Kings	22-22-18	6,673	sd. sh. drlg.
Standard Oil, No. 46-13-H Kettleman North, Fresno	13-21-16	10,836	fishing
Standard Oil, No. 58-33-J Kettleman North, Fresno	33-21-17	8,310	gr. sd. drlg.
Standard Oil, No. 78-1-P Kettleman North, Kings	1-22-17	7,687	gr. sd. drlg.
Standard Oil, No. 21-13-P Kettleman North, Kings	13-22-17	7,248	redrlg. 6,250
Standard Oil, No. 74-7-Q Kettleman North, Kings	7-22-18	7,352	P.B. 7,195
Standard Oil, No. 61-21-Q Kettleman North, Kings	21-22-18	5,170	sd. sh. drlg.
Dudley Ridge Oil, No. 2 Josephine, Cloud, Kings	24-23-20	6,510	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St. sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting for cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Cal. Pet. Prod., No. 1 Elkhorn, San Luis Obispo	6-10-25	1,872	idle	
Hancock Oil, No. 1 Dick, Huasna, San Luis Obispo ..	30-12-33	3,361	cleaning out	
West. Plains Oil, No. 2 Panorama Hills, S. L. Obispo	2-32-21	2,630	idle	
Crusaders Oil, No. 1 Ducor, Tulare	1-24-27	351	idle	
Wilshire Oil, No. 1 Cowell, Half Moon Bay, S. Mateo	20- 6-5	2,525	rig. to pump	
Ohio Oil, No. 1-A Willard, Willows, Glenn	18-20-2	5,350	sd. sh. drlg.	
Richfield Oil, No. 1 Potrero Hills, Solano	10- 4-1	3,392	sd. sh. drlg.	
Amerada Pet., No. 1 California Lands, Colusa, Colusa	34-16-1	2,890	sd. sh. drlg.	
Texas Co., No. 1 Midland, Rio Vista, Sacramento ...	4- 3-3	3,871	gas sand	

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S.T.R.	Depth	Status
Apex Pet., No. 3 Elsie, El Segundo, Los Angeles	12- 3-15	6,996	sd. sh. drlg.
Burnoel Pet., No. 1 Elsie, El Segundo, Los Angeles..	12- 3-15	5,281	sd. sh. drlg.
Sovereign Oil, No. 2, El Segundo, Los Angeles	12- 3-15	7,160	O.S. drlg.
Treasure Oil, No. 3, Playa Del Rey, Los Angeles	21- 2-15	6,510	Schist; drlg.
D. & B. Oil, No. 1, Lomita, Los Angeles	30- 4-13	5,275	flow. 800 b.d.
Patton-Conway, No. 1 fee, Torrance, Los Angeles ...	15- 4-14	4,997	flow. 690 b.d.
Grubbs & Main, No. 1 Lyman, Torrance, Los Angeles	14- 4-14	5,016	pump. 240 b.d.
Gypsy Oil, No. 16 Getty, Torrance, Los Angeles	14- 4-14	3,996	sd. sh. drlg.
Andrews & Mitchell, No. 11 Kirk, Torrance, L. Ang.	14- 4-14	3,778	will deepen
Ind. Drlg., No. 1 Mitchell, Torrance, Los Angeles ..	15- 4-14	4,810	sd. sh. drlg.
McCowan, C. T., No. 1 Lindis, Torrance, Los Angeles	23- 4-14	4,780	abd.
McCowan, C. T., No. 1A Lindis, Torrance, Los Angeles	23- 4-14	677	sd. sh. drlg.
Morton & Elder, No. 1, Torrance, Los Angeles	23- 4-14	2,481	sd. sh. drlg.
McDonald & Burns, No. 2 Moore, Torrance, L. Ang.	23- 4-14	3,775	redrlg. 3,745
McDonald & Burns, No. 7 Moore, Torrance, L. Ang.	23- 4-14	4,380	sd. sh. drlg.
Lomita Drlg., No. 1 Stevenson, Torrance, L. Angeles	23- 4-14	4,910	sd. sh. drlg.
Calmont Oil, No. 1 Talbert, Torrance, Los Angeles6	23- 4-14	3,815	redrlg. 3,806
M. P. S. Oil, No. 1 Julian, Torrance, Los Angeles ...	14- 4-14	3,801	rigged up
Camp, C. W., No. 13, Torrance, Los Angeles	23- 4-14	4,930	sd. sh. drlg.
Doyle Pet., No. 3-A Getty, Torrance, Los Angeles ...	14- 4-14	5,634	P.B. 5,060
Elexico Oil Co., No. 1 Allen, Torrance, Los Angeles	23- 4-14	5,015	flow. 410 b.d.
Charleston Oil, No. 1 Marcoux, Torrance, Los Angeles	14- 4-14	4,915	sd. sh. drlg.
Kovell Oil, No. 1 Torrance, Los Angeles	22- 4-14	3,587	sd. sh. drlg.
Hughes, W., No. 2, Torrance, Los Angeles	23- 4-14	5,015	flow. 200 b.d.
Hughes, W., No. 3, Torrance, Los Angeles	14- 4-14	3,750	idle
Krause & Baker, No. 2 Gladys, Torrance, Los Angeles	14- 4-14	3,795	rigged up
Peters Royalty, No. 1, Torrance, Los Angeles	14- 4-14	5,023	pump. 75 b.d.
Packard Pet., No. 1 Kelley, Torrance, Los Angeles ..	14- 4-14	3,806	redrlg. 3,486
Consolidated Pet., No. 2, Torrance, Los Angeles	15- 4-14	2,832	sd. sh. drlg.
Texas Co., No. 10 Wilson, Torrance, Los Angeles ...	22- 4-14	5,020	flow. 680 b.d.
Texas Co., No. 11 Wilson, Torrance, Los Angeles ...	14- 4-14	5,026	sd. sh. drlg.
Wilton Oil, No. 4, Torrance, Los Angeles	22- 4-14	4,850	sd. sh. drlg.
Star Pet., No. 1 G & A, Torrance, Los Angeles	23- 4-14	4,965	flow. 610 b.d.
Silver Beach Oil, No. 1, Torrance, Los Angeles	14- 4-14	4,589	redrlg. 4,167
Imperial Gypsum, No. 2 Getty, Torrance, L. Angeles	14- 4-14	3,785	cleaning out
Zenith Oil, No. 1 Torrance, Los Angeles	5- 5-14	3,142	sd. sh. drlg.
C C. M. O., No. 8, Torrance, Los Angeles	15- 4-14	3,723	rigged up
C. C. M. O., No. 13, Torrance, Los Angeles	15- 4-14	4,985	O.S. drlg.
Hansco Oil, No. 1 Gladys, Torrance, Los Angeles	14- 4-14	5,000	O.S. drlg.
Berken Oil, No. 1 Star, Torrance, Los Angeles	15- 4-14	4,998	flow. 395 b.d.
Stabler, W., No. 2 Marland, Dominguez, Los Angeles	3- 4-13	4,375	flow. 340 b.d.
Union Oil, No. 58 Callender, Dominguez, Los Angeles	33- 3-13	7,550	redrlg. 6,850
Union Oil, No. 62 Callender, Dominguez, Los Angeles	33- 3-13	4,561	sd. sh. drlg.
Shell Oil, No. 95 Reyes, Dominguez, Los Angeles ...	33- 3-13	5,561	sd. sh. drlg.
Barnsdall Oil, No. 4 Trust, Rosecrans, Los Angeles	18- 3-13	5,480	sd. sh. drlg.
Union Oil, No. 20 Rosecrans, Rosecrans, Los Angeles	18- 3-13	5,950	cleaning out
Union Oil, No. 21 Rosecrans, Rosecrans, Los Angeles	19- 3-13	4,797	sd. sh. drlg.
Union Oil, No. 23 Rosecrans, Rosecrans, Los Angeles	18- 3-13	5,286	sd. sh. drlg.
Universal Consd., No. 3 Trust, Rosecrans, L. Angeles	18- 3-13	7,715	flow. 1,220 b.d.
Universal Consd., No. 4 Trust, Rosecrans, L. Angeles	18- 3-13	1,977	sd. sh. drlg.
Howard Oil, No. 1 Gordon, Rosecrans, Los Angeles..	19- 3-13	6,596	redrlg. 6,073
Barnsdall Oil, No. 3 S.F., Newhall, Los Angeles	26- 4-17	6,553	cmtd. 6,242
Shell Oil, No. 1 Dougherty, Saugus, Los Angeles	9- 4-17	2,220	dry; abd.
Royal Lands, No. 1 Ramona, Castaic, Los Angeles ..	8- 4-17	730	sd. sh. drlg.
General Pet., No. 3 Blinn, Wilmington, Los Angeles	4- 5-13	3,643	flow. 220 b.d.
General Pet., No. 16 Harbor, Wilmington, L. Angeles	2- 5-13	2,560	sd. sh. drlg.
General Pet., No. 10 S.P., Wilmington, Los Angeles.	3- 5-13	2,585	sd. sh. drlg.
Allied Pet., No. 28, Wilmington, Los Angeles	32- 4-13	2,794	sd. sh. drlg.
Getty Oil, No. 1-W, Wilmington, Los Angeles	33- 4-13	5,701	flow. 530 b.d.
Burns Oil, No. 1, Wilmington, Los Angeles	32- 4-13	1,794	sd. sh. drlg.
Hogan Pet., No. 4 Graham, Wilmington, Los Angeles	2- 5-13	3,132	flow. 298 b.d.
Hancock Oil, No. 10-B, Wilmington, Los Angeles ..	2- 5-13	2,756	O.S. drlg.
Hancock Oil, No. 24-C, Wilmington, Los Angeles ...	2- 5-13	4,192	P.B. 4,124
Hollywood Oil, No. 2 Baxter, Wilmington, L. Angeles	35- 4-13	2,561	sd. sh. drlg.
Macson Oil, No. 1-55-C, Wilmington, Los Angeles	32- 4-13	3,655	O.S. drlg.
Macson Oil, No., 1-55-O, Wilmington, Los Angeles ..	32- 4-13	2,987	sd. sh. drlg.
Richfield Oil, No. 1-P.D., Wilmington, Los Angeles .	2- 5-13	3,336	O.S. drlg.
Richfield Oil, No. 4-P.D., Wilmington, Los Angeles .	2- 5-13	2,281	sd. sh. drlg.
Richfield Oil, No. 5-P.D., Wilmington, Los Angeles .	2- 5-13	3,644	O.S. drlg.
Richfield Oil, No. 7-P.D., Wilmington, Los Angeles .	2- 5-13	2,603	sd. sh. drlg.
Richfield Oil, No. 2-R.G., Wilmington, Los Angeles .	2- 5-13	3,380	pump. 60 b.d.
Richfield Oil, No. 1 Victory, Wilmington, Los Angeles	35- 4-13	3,177	sd. sh. drlg.
Richfield Oil, No. 3-P.G., Wilmington, Los Angeles ..	2- 5-13	2,985	sd. sh. drlg.
Royalty Serv., No. 1-F.E., Wilmington, Los Angeles .	2- 5-13	2,369	sd. sh. drlg.
Republic Pet., No. 1 Harbor, Wilmington, L. Angeles	2- 5-13	2,771	O.S. drlg.
Republic Pet., No. 2 Harbor, Wilmington, L. Angeles	2- 5-13	2,720	O.S. drlg.
Republic Pet., No. 3 Harbor, Wilmington, L. Agneles	2- 5-13	2,494	sd. sh. drlg.
Tide Water A., No. 1 Ban., Wilmington, Los Angeles	29- 4-13	3,652	sd. sh. drlg.
Universal Consd., No. 4 Newport, Wilmington, L. A.	2- 5-13	3,947	O.S. drlg.
Union Pacific, No. 84, Wilmington, Los Angeles ...	3- 5-13	2,456	sd. sh. drlg.
Union Pacific, No. 8-E, Wilmington, Los Angeles ...	3- 5-13	3,915	flow. 5,400 b.d.
Union Pacific, No. 9-E, Wilmington, Los Angeles ...	3- 5-13	4,085	O.S. drlg.
Union Pacific, No. 1-P.D., Wilmington, Los Angeles	3- 5-13	3,097	sd. sh. drlg.
Union Pacific, No. 2-P.D., Wilmington, Los Angeles	3- 5-13	4,130	O.S. drlg.
Wilgate Oil, No. 1 Harbor, Wilmington, Los Angeles	2- 5-13	4,460	sd. sh. drlg.
Wil. O. & D., No. 1 Harbor, Wilmington, Los Angeles	33- 4-13	5,700	sd. sh. drlg.
St. Helens Pet., No. 27 Monterey, Montebello, L. A.	2- 2-12	5,560	O.S. drlg.
St. Helens Pet., No. 28 Monterey, Montebello, L. A.	2- 2-12	3,171	sd. sh. drlg.
St. Helens Pet., No. 2 Eggleston, Montebello, L. A.	2- 2-12	3,770	sd. sh. drlg.
Union Oil, No. 1 H. & S., Montebello, Los Angeles ..	2- 2-12	5,770	completing
Union Oil, No. 2 H. & S., Montebello, Los Angeles ..	2- 2-12	942	sd. sh. drlg.
V-8 Oil, No. 1 Estelle, Montebello, Los Angeles	2- 2-12	3,996	sd. sh. drlg.
West Mon. Oil, No. 2 Seavers, Montebello, Los Ang.	2- 2-12	2,254	sd. sh. drlg.
Standard Oil, No. 1 McDonald, Montebello, Los Ang.	2- 2-12	3,764	sd. sh. drlg.
Herley-Kelley, Inc., No. 1 Burke, Montebello, L. Ang.	2- 2-12	5,178	sd. sh. drlg.
McVicar & Rood, No. 2 Manz, Montebello, L. Angeles	2- 2-12	1,480	sd. sh. drlg.
Brookline Oil, No. 1 Drake, Montebello, Los Angeles	2- 2-12	6,194	sd. sh. drlg.
Security L. & W., No. 1 Tobey, Whittier, L. Angeles	8- 2-11	680	sd. sh. drlg.
Hilldon Oil, No. 4 Amebco, N. Long Beach, L. Angeles	13- 4-13	4,389	sd. sh. drlg.
Hilldon Oil, No. 1 Dominguez, N. Long Beach, L. Ang.	14- 4-13	7,739	cmtd. 7,737
Johnston Drlg., No. 34, Long Beach, Los Angeles ..	13- 4-13	1,962	sd. sh. drlg.
Texas Co., No. 1 Wilson, Long Beach, Los Angeles ..	29- 4-12	3,880	sd. sh. drlg.
De Soto Oil, No. 1, Long Beach, Los Angeles	30- 4-12	2,780	sd. sh. drlg.
Richfield Oil, No. 5 Bixby, Long Beach, L. Angeles	13- 4-13	4,525	pump. 280 b.d.
J. E. F. Oil, No. 1 Schaaf, Huntington, Los Angeles	36- 5-11	4,400	recmtd. 4,340
Texas Co., No. 3 Pearce, Huntington, Orange	2- 6-11	4,497	sd. sh. drlg.
Brea Canyon Oil, No. 48, Brea Canyon, Orange	2- 3-10	4,474	sd. sh. drlg.
Battersby, J. M., No. 1 Carmenita, Orange	21- 3-11	2,669	sd. sh. drlg.
Shell Oil, No. 1 Weisel, Anaheim, Orange	16- 4-10	5,994	dry; abd.
Alford Dev., No. 1 Yorba, Richfield, Orange	29- 3-9	587	sd. sh. drlg.
Shell Oil, No. 1 Cuff, Richfield, Orange	29- 3-9	2,632	sd. sh. drlg.
Shell Oil, No. 1 Hemphill, Richfield, Orange	30- 3-9	1,632	sd. sh. drlg.
Millerand Pet., No. 1 Miller, Yorba, Orange	22- 3-9	1,734	cmtd. 1,685
Brown & Co., No. 2 Hurley, Yorba, Orange	22- 3-9	998	sd. sh. drlg.
Beth Oil, No. 1 Dillingham, Yorba, Orange	21- 3-9	2,351	cmtd. 2,256
Holly Oil, No. 1 Harris, Yorba, Orange	21- 3-9	1,856	pump. 160 b.d.
Signet Oil, No. 2 Kraemer, Yorba, Orange	21- 3-9	1,676	sd. sh. drlg.
Pearl J. Oil, No. 1 Dobashi, Yorba, Orange	21- 3-9	1,801	sd. sh. drlg.
A. V. Oil, No. 1, Costa Mesa, Orange	16- 6-10	3,003	sd. sh. drlg.
Congress Oil, No. 1, Santa Ana, Orange	36- 3-9	3,014	bailing
So. Counties Oil, No. 1 Club, Serrano, S. Bernardino	22- 2-8	160	sd. sh. drlg.

OKLAHOMA

Week Ending June 25

NORTHERN OKLAHOMA

Adair County

Maddon-Penn Mutual Life Ins. Co., C S½ NE NW sec. 5-16-24. T.D. 520 ft.; S.D.

Beckham County

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. T.D. 2,764 ft.; S.D.

Canadian County

Supreme Oil Co. No. 1 Tilly, NW NW NE sec. 20-12-10w. T.D. 115 ft.; crooked hole; to **skid.**

Cimarron County

W. A. Delaney et al No. 1 Bugher, SE SE SW sec. 12-7-2w. T.D. 7,682 ft.; opened and flwd. 298 B.O. and 414 B. W. in 21 hrs.; reopened and failed to flw.

Coal County

Carter et al No. 1 Mote, C E½ SW NW sec. 19-2-9. Drlg. 3,552 ft.

Comanche County

Midnite O. & G. Co. No. 1 Howe, NW NW NW sec. 20-2n-12w. S.D. 334 ft.
Clyde Roach No. 1-A Green, SE SE SW sec. 2-1n-13w. T.D. 760 ft.; S.D.

Creek County

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 3,018 ft.; 2,000 ft. W.I.H. and S.S.O.; S.D.

Ellis County

E. Fletcher No. 1 Wahl, NW NW NW sec. 1-19-25w. T.D. 694 ft.; S.D.

Garfield County

I.T.I.O. No. 1 Kechin, C SE SE sec. 17-22-5w. Drlg. 1,605 ft.
E. Kendall et al No. 1-A State, SW cor. sec. 13-23-3w. Est. 2,000,000 ft. gas at 1,010-35 ft.; T.D. 1,070 ft.; S.D.

Garvin County

First Natl. Oil Co. No. 1 Butterly, NE NE SE sec. 22-1n-1e. T.D. 1,594 ft.; S.D.W.

Grady County

Gulf Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. T.D. 11,415 ft.; pipe **stuck.**

Greer County

J. H. Everitt No. 1 Graumann, NE NW NW sec. 11-5-21w. T.D. 550 ft.; S.D.

Hughes County

Homer Doup et al No. 1 Bank, NE NE NW sec. 7-7-9. S.D. 1,050 ft.
Phillips Pet. Co. No. 1 Becker, NE NW SW sec. 8-5-10. T.D. 6,286 ft.; plug. 5,612 ft.; drld. out to 5,660 ft.; flw. 15,068 ft. B.O., wildcat allowable; cmtd. off wtr.; drlg. plug at 5,667 ft.
Troup & Strickland No. 1 Brown, NW SW NE sec. 32-6-8. S.D. 660 ft.

Kay County

Champlin Ref. Co. No. 1 Boehm, SW SW NE sec. 24-27-4. T.D. 950 ft.; S.D.
Helmerich & Payne No. 1 Sch. Ld., SW SE SW sec. 16-28-1w. Wilcox 3,530 ft.; cg. 3,532-36 ft.; no shows; to core ahd.
Clark C. Nye No. 1 Weatherby, NW SE SW sec. 24-27-4. Cg. 3,016 ft.; S.S.O.&G.; S.D. for mach.
E. J. Shaffer et al No. 1 McKee, NE NW sec. 20-28-1w. T.D. 2,500 ft.; S.D.
Westgate-Greenland Oil No. 1 Willin, SE SE SW sec. 24-27-4. T.D. 3,048 ft.; shot at 3,000-15 ft.; S.S.O.&G.; D.&A.

Kingfisher County

Hollenback & Haley No. 1 Zerger, C SE SW sec. 5-18-6w. T.D. 205 ft.; S.D. for gas.

Kiowa County

Anderson-Prichard Oil Corp. No. 1 Cribbs, sec. 28-7n-19w. Drlg. 1,790 ft.
Anderson-Prichard Oil Corp. No. 1 Johnson, sec. 10-7-20w. T.D. 1,213 ft.; S.D. tools moved out.
Anderson-Prichard Oil Corp. No. 1 Sch. Ld., SE SE SE sec. 14-6n-17w. Drlg. 1,030 ft.
Gauntt & Baker No. 1 Parks, NW NW SW sec. 29-7-20w. T.D. 1,075 ft.; P.B. 900 ft.; wtr. at 921-23 ft.; S.D.
Hughes & Reese No. 1 Fultz, SE SE SW sec. 10-6-18w. Drlg. by tools at 1,238 ft.

Lincoln County

Indian States No. 1 Bailey, NW NW NE sec. 2-12-5. Fsg. at 2,995 ft.

Logan County

Sinclair-Prairie No. 1 Crews, SW SW NE sec. 27-16-1e. T.D. 5,223 ft.; shot twice and flwd. 192 B.O. in 13 hrs.; may acdz.
Superior Oil of Calif. No. 1 McCulley, C W½ NW NW sec. 26-16-4w. Drlg. 3,340 ft.

Muskogee County

T. P. Clants No. 1 Jennings, NW NW NE sec. 8-13n-19. S.D. 840 ft.
Heydrick No. 1 Paschall, NE SE NW sec. 22-13n-19. S.D. 678 ft.
O. K. Jackson No. 1-A Smith, SW NE NE sec. 23-16-15. T.D. 1,147 ft., sd.; D.&A.

Noble County

Big Chief No. 1 Hoy, SE SE SW sec. 33-21-2w. Drlg. 1,105 ft.
H. R. Hollenback No. 1 Mathews, C SW NW sec. 9-20-1. Rig.

Okfuskee County

C. W. Titus No. 1 Lehmar, C NE NE sec. 26-11-8. Drlg. 1,270 ft.

Okmulgee County

Manahan Oil Co. No. 1 Kennedy, NE NW NE sec. 31-14-11. Drlg. 1,310 ft.

Osage County

Chevalier-Simon No. 1 Osage, NW NW SW sec. 33-27-5. Gas 3,074 ft.; Miss. 3,154-68 ft.; no shows; S.D.O.
Norbla Oil Co. No. 1 Osage, SE cor. sec. 18-25-7. T.D. 2,784 ft.
Norbla No. 2 Osage, SW SW SE sec. 30-22-9. Drlg. 1,830 ft.
Wah Sha She Oil Co. No. 1 Osage, NE NE NW sec. 4-28n-9. S.D. 1,980 ft.

Pawnee County

O. O. Owens et al No. 1 Riddle, C E½ E½ NW sec. 30-22-7. T.D. 3,390 ft.; 1,700 ft. W.I.H.; D.&A.

Payne County

R. L. Kemp et al No. 1 Rafferty, SE SE NE sec. 6-18-5. T.D. 3,705 ft.; P.B. to 3,470 ft.; set csg.; 5,000,000 ft. gas; comp.
Texas Co. No. 1 Logan, C W½ NW NW sec. 12-17-1e. T.D. 4,956 ft.; flwd. 525 B.O. in 13 hrs.; est. 600,000 ft. gas; grav. 46; ran tbg. to 4,944 ft. and flwd. 275 B.O. in 6½ hrs.; opened and would not flow; S.I.

Pittsburg County

Supreme Oil Corp. No. 1 Hickey, NW SW NW sec. 4-2n-15. S.D. 643 ft.; (mach. gone).
Supreme Oil Co. No. 1 Stevenson, SW SW SE sec. 27-3n-14. S.D. 75 ft.

Pontotoc County

Anderson-Prichard No. 1 Mayer, SE SE SW sec. 19-3-8. T.D. 1,412 ft.; H.F.W.; D.&A.
Caioma Oil Corp. No. 1 Brents, SE NE SW sec. 4-1n-6. T.D. 1,574 ft.; S.D.
Farmers Mutual Royalty Corp. No. 1 Waite, NE NE NW sec. 9-5-5. Wilcox sd. 3,200 ft.; T.D. 3,234 ft.; set csg. 2,882 ft.; bailing.
H. W. Lee No. 1 Weatherby, NW SE NW sec. 24-1n-7. S.D. 700 ft.
Jack Lynch et al No. 1-A Parker, SW SW SE sec. 17-4-8. T.D. 4,572 ft.; S.D.
Union Dev. Co. No. 1-A Abbott, SW NW NE sec. 34-3-6. Drlg. 2,013 ft.

Pottawatomie County

Atlantic Ref. Co. No. 1-A McCurry, NW NE SW sec. 6-6-4. Rig.
C. W. James No. 1 Henderson, NW NW NE sec. 4-5n-3. Rig.
Pure Oil Co. No. 1 Lack et al, SE SW NW sec. 3-6-5. T.D. 4,270 ft.; P.B. 4,100 ft.; W.O.C.
J. F. Smith et al No. 1 Henderson, NW NW NE sec. 4-5-3. Drlg. 3,408 ft.

Seminole County

Boetcher O. & G. No. 1 Morgan, SE NE NW sec. 8-5n-7. Drlg. 1,003 ft.; H.F.W.
Denver P. & P. No. 1 Mathis, SW NW SW sec. 7-6-6. Dol. 3,760 ft.; cmtg. at 3,700 ft.; swb. 60 B.O. in 16 hrs.; P. 97 B.O. in 12 hrs.
Indian States et al No. 1 Johnson, NE SE NE sec. 2-6-5. Drlg. 2,983 ft.; 350 ft. W.I.H.; no oil.
R. McQueen et al No. 1 Harris, SW SW SW sec. 30-7-6. Drlg. 2,170 ft.
Young & Newsom No. 1 Edgeman, SE

SE SE sec. 17-7-6. T.D. 2,930 ft.; installing new equip.

Washita County

L. B. McWhirter No. 1 fee, NW SW SW sec. 34-8-19w. T.D. 2,147 ft.; W.O.C.

SOUTHERN OKLAHOMA

Atoka County

C. M. Sheldon and Gardner Pet. Co. No 1 Lee, NE NW SW sec. 2-4s-10e. T.D 3,110 ft.; S.D.

Carter County

Texas Co. No. 1-B Cathey, SE NE NE sec. 6-5s-1w. T.D. 5,685 ft.; P.B. 5,477 ft.; pmpd. 10 B.O.P.D.; pumpd. off in 6-8 hrs.

Choctaw County

Clyde Ross et al No. 1 Hardy, SE SE NW sec. 21-7s-15. Drlg. 900 ft.

Creek County

L. B. Jackson No. 1 Berryhill, NW NW NW sec. 1-18n-10. Drlg. 250 ft.

Love County

Mossad & Swainsberger No. 1 Barrett, N SE SE sec. 14-6s-2w. T.D. 1,890 ft.; S.D.

Sinclair Prairie Oil Co. No. 1 Peabody, NE cor. sec. 35-6s-2w. T.D. 5,961 ft.; P.B. 5,585 ft.; to drill by.

Marshall County

E. W. Hughes Drlg. Co. et al No. 1 Vititoe, C NE SE sec. 11-5s-4e. S.D. 7,106 ft.

Stephens County

Coline Oil Co. No. 1 Johnson, C SW SE SW NE sec. 1-2n-8w. T.D. 10,000 ft.; 9,050 ft.; made several hd. flws., 37-grav. oil, placed on gas-lift.

Tillman County

Smith No. 2 Hammell, NE NW NW sec. 6-5s-15w. T.D. 2,000 ft.; S.D.

KANSAS

Week Ending June 25 (Descriptions are East unless marked otherwise)

Barton County

Armer & Vernon No. 1 Seyfert, NW SW NE sec. 3-17-13w. Arb. 3,380 ft.; T.D 3,398 ft.; bailing 4 B.O.P.H.

Colonial Oil No. 1 Lust, NW NE sec. 19-17-13w. T.D. 100 ft.; W.O.C.

Crown Pet. Corp. No. 1 Wolf, SE SW SE sec. 36-19-12w. U.R. at 2,243 ft.

R. E. Day et al No. 1 Felts, SE SE NE sec. 14-16-12w. S.D. 1,875 ft.

Kessler O. & G. No. 1 Bowman, SW NE sec. 22-20-16w. Drlg. 1,580 ft.

Sinclair Prairie Oil Co. No. 1 Frederick SW SW SE sec. 16-16-11w. Arb. 3,322 ft.; T.D. 3,336 ft.; swb. 58 B.O. and 212 B.W. in 6 hrs.

Western Kansas O. & R. Co. and Republic Nat. Gas Co. No. 1 Linsner, SW SW SE sec. 3-17-13w. Arb. 3,362 ft.; T.D. 3,367 ft.; 2,900 ft. O.I.H.; pmp. 115 B.O. in 3 hrs.; grav. 37.9; cor.

Butler County

T. S. Dustin No. 1 Miley, SE NW NE sec. 17-27-5e. T.D. 2,008 ft.; S.G.; S.D.

Heilman & Harwood No. 1 Sawver, SE NE NE sec. 10-28-7. Drlg. 1,050 ft.

Rex & Morris No. 1 Newby, SW SE sec. 16-26-7. Drlg. 1,050 ft.

Max Steinbuchel et al No. 1 Fox, NW SE NE sec. 25-26-3. Drlg. 2,100 ft.

Colfey County

Barner & Leiker No. 1 Knapp, SE SW NW sec. 27-22-14. S.D. 555 ft.

Western Kans. O. & R. Co. No. 1 Knapp, SW SW NW sec. 27-22-14. Spd.

Cowley County

Hutchinson O. & G. Co. No. 1-A Ketchen, SW SE SE sec. 11-35-5. Drlg. 2,340 ft.

Smith et al No. 1 Wilson, SE SW NW sec. 9-33-6. S.O. at 3,096 ft.; 600 ft. F.I.H. in 2 days; T.D. 3,149 ft.; P.B. 3,110 ft.; est. 60 B.O.P.D.; W.O.C.

Dickinson County

Fred Franks et al No. 1 Huffman, NW NW sec. 11-13-1e. S.D. 1,177 ft.

Ellis County

Cities Service No. 1 Hall, CEL W½ NE sec. 35-11-17w. Set csg. 78 ft.; W.O.C.

Ellsworth County

Cities Service No. 1 Gibson, SW SE NE sec. 10-18-8w. R.U.R.

Cities Service et al No. 2 Schroeder "A," CNL SW sec. 29-17-9w. Drlg. 1,310 ft.

Finney County

Atlantic Ref. Co. No. 1 Nunn, C SE NE sec. 27-21-34w. T.D. 4,667 ft.; swb. 256 B.O. in 12 hrs.

Ford County

Sinclair Prairie Oil Co. No. 1 Young, CSL NE sec. 34-27-21w. Viola 5,350 ft.; dolomite at 5,512 ft.; Wilcox 5,617 ft.; Arb. 5,629 ft.; T.D. 5,655 ft.; rng. elec. survey.

Greenwood County

C. C. Whitaker et al No. 1 Bressner, NW SE sec. 8-26-13e. T.D. 1,498 ft.; 1,000,000 ft. gas est.; P.B. 1,495 ft.

Jackson County

Haverback et al No. 1 Marble Bank, C NE NE sec. 26-9-14. Drlg. 2,455 ft.

Lane County

Phillips Pet. Co. No. 1 Kees, C SE SE sec. 3-19-30w. T.D. 2,566 ft.; lost circ.

Valerius & Marshall No. 1 Schierecks, C SE sec. 8-18-30w. R.U.R.

Marion County

Johnson et al No. 1-A Miltz, SW SW SW sec. 24-17-4. C.O. 1,130 ft.

Ness County

Jones & Lane No. 1 Page, SE NW sec. 36-18-26w. T.D. 3,270 ft.; S.D.

Mid-Continent Oil Co. No. 1 Collins, NW NW sec. 24-20s-26w. M.I.M.

Schoeppel & Elmore No. 1 Moses, C SW NW sec. 10-18-25w. T.D. 4,353 ft.; acd. p. 600 B.O.P.D.

Ottawa County

Babcock Oil No. 1 Copeman, NW NW sec. 18-10-2w. Drlg. 248 ft.

Pawnee County

Kessler Oil & Gas No. 1 Dirks, NW NW NE sec. 14-20-16w. Drlg. 2,500 ft.

Pratt County

Tidewater No. 1 Jarboe, C NL SE sec. 25-26-14w. T.D. 4,065 ft.; fsg.

Reno County

L. E. Douglas et al No. 1 Durand SE SE SW sec. 3-23-5w. Drlg. 3,600 ft.

Rice County

Marylyn Oil Co. et al No. 1 Vincent, NW NW NE sec. 5-21-10w. Drlg. 3,357 ft.

Riley County

Coronado Oil et al No. 1 Parks, SE SE sec. 16-10-8. Drlg. 1,200 ft.

Rooks County

Carter Oil Co. No. 1 Whitford, NE NE SE sec. 12-7-17w. T.D. 3,355 ft.; Arb.; P.B. and drld. out to 2,935 ft.; tstg.

H. V. Elwell and Tree Oil No. 1 Blair, SE SW sec. 34-10-19w. Loc.

Graham et al No. 1 Fike, SW cor. sec 9-9-17w. Drlg. 3,500 ft.

Fred Haines et al No. 1 Don, SE SE SW sec. 13-9s-16w. R.U.

J. J. Hall No. 1 Kruse, SE NE sec. 3-10-16w. Drlg. 1,110 ft.

F. O. Haun No. 1 Gavenhorst, SE SE SE sec. 7-6-16w. M.I.M.

Producers Oil Co. No. 1 Ham, SW SW NW sec. 25-7-19w. U.R. 10-in. at 1,410 ft.

Rush County

Phillips Pet. Co. No. 1 John Kees, C SE SE sec. 3-19-20w. T.D. 2,500 ft.; S.D for csg.

Shell Pet. Corp. No. 1 Cramm, CNL NE sec. 15-19-19w. Surface.

Russell County

Aylward Prod. Co. No. 1 Salbach, SE NE sec. 31-14-14w. Drlg. 355 ft.

Coralena No. 1 Hefferman, NE SE SW sec. 34-14-13w. Drlg. 1,965 ft.

J. J. Hall No. 1 Landon, SW SE sec. 11-15-14w. T.D. 3,100 ft.; 1,800 ft. O.I.H.; W.O.C.

Phillips Pet. Co. No. 1 Miller, C NW SW sec. 29-13-14w. K.C. L. 3,044 ft.; fair sat.; fsg. 3,068 ft.

R. H. Shields No. 1 Anschutz, SW SE sec. 2-14-13w. Drlg. 3,362 ft.

R. H. Shields No. 1 Rogg, CEL W½ NW sec. 9-15-13w. Rig.

Smith & Unruh No. 1 Stielow, NW cor. sec. 32-11-14w. T.D. 2,552 ft.; S.D.

Web-Son O. & R. No. 1 Baxter, NW SE sec. 4-15-15w. Drlg. 2,880 ft.

Sedgwick County

D. M. Crowe et al No. 1 Murphy, SW SW SE sec. 34-29-1w. Rig.

Frank Hudson et al No. 1 Fulton, NE SE sec. 35-28-1e. S.D. 2,248 ft.

Natl. Ref. No. 1 Trustee, SE NE sec. 8-27-2. Drlg. 1,880 ft.

Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. Drlg. 3,550 ft.

Stafford County

Austin Drlg. Co. No. 1 Slade, NE NW sec. 35-25-12w. Drlg. 3,300 ft.

Kenneth Harris No. 1 Barnes, NW cor. sec. 8-21-12w. Loc.

Sumner County

Hapenney et al No. 1 Evers, SE SE NE sec. 27-31-2e. O.W.D.D.; T.D. 2,015 ft.; W.O.C.

Murphy et al No. 1 Tate, SE NW sec 31-32-2e. S.S.O. at 3,440 ft.; S.D. 3,516 ft.

Woodson County

Cleveland Oil Co. et al No. 1 Fidelity, SE SE NE sec. 34-25-15. T.D. 1,436 ft.; est. 8 B.O.P.D.; grav. 34.6; C.O.

W. C. Cohen et al No. 1 Pendlay, NW SW sec. 5-26-15. Drlg. 1,530 ft.

Hill & McClure No. 1 Kelley, NW SE SW sec. 22-26-14w. S.D. 1,240 ft.

Ward McGinnis No. 1-A Hill, C SW SE sec. 32-26s-15. Drlg. 760 ft.

Phil-Han Oil No. 1 Evans, NW SE sec. 21-23-15. Drlg. 1,545 ft.

Max Steinbuchel No. 1 States, NW NE NW sec. 15-26-14. S.D. 160 ft.

Thomas County

Connelly et al No. 1 fee, NW SE SE sec. 4-10-35w. T.D. 132 ft.; S.D.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville County

Gulf Ref. Co. No. 1 Goodpine, sec. 25-14-8. Drlg. hd. sdy. L. 10,577 ft.

Bossier Parish

Premier Inv. Co. No. 1 McDade, SE SW NE sec. 28-19-11. Drlg. sd.&sh. 2,305 ft.

Sloan, Lloyd et al No. 1 Sherrill, sec. 12-19-12. T.D. 780 ft.; set 5½-n. 778 ft.; trtd. with 1,000 gal. acd.; tstd. dry; W.O.

Union Prod. Co. No. 3-C Skannel, NE cor. sec. 13-17-12. D.S.T. 3,005-21 ft. tstd. 60 ft. mud cut with oil; 520 ft. oil; 420 ft. S.W. in 15 min.; O. sd. 3,015-21 ft.; set 5½-in. csg. 3,168 ft.; tstd. S.W. 3,122 ft.; P.B. 3,105 ft.; perf. 3,096-3,104 ft.; swbg. S.W. 3,906-3,104 ft.; set cmt. plug 3,085 ft.; W. O.C.; T.D. 3,122 ft.

Union Prod. Co. No. 2 Thigpen-Herold, sec. 13-17-12. T.D. 3,162 ft.; D.S.T. 2,-980-3,030 ft.; rec. 400 ft. oil and 120 ft. mud and oil in 21 min.; set 7-in. csg. 3,109 ft.; P.B. 3,132 ft.; treated 2,000 gal. acd.; no ga.; S.I.; W.O. stg.

Caddo Parish

R. E. Allison No. 1 Ellerbee et al., NW cor. sec. 27-18-14. Drlg. hd. L. 5,005 ft.

Driscoll No. 1 Muslow, SE cor. NE NW sec. 4-20-15. R.U. to drill in at 2,197 ft.

J. T. Driscoll No. 4 Self, NE SE sec. 10-20-15. Set 6-in. csg. 2,186 ft.; T.D. 2,192 ft.

Falcon Oil Co. No. 2 Glassell-Youree, SE cor. sec. 26-20-15. Set 10-in. csg. 68 ft.

E. W. McGoldrick No. 8 Muslow, sec. 32-21-15. Drlg. sh. 1,185 ft.

Midfield Oil Co. No. 2 Muslow, sec. 6-20-15. Drlg. ch. rk. 1,575 ft.

J. F. Mitchell No. 2 Muslow, sec. 31-21-15. Set 6-in. csg.; T.D. 1,390 ft.

Oils, Inc., No. 1 Cazaux, sec. 10-16-13. Drlg. sh. 510 ft.

Petroleum Heat & Power Co. No. 1 Wemple, NW cor. sec. 14-20-15. Set 6-in. csg. 2,185 ft.; P.B. 2,200 ft.; old T.D. 2,605 ft.; fsg. for lnr. 2,200 ft.; tstd. S.W.; W.O.

T. D. Sedberry No. 1 Stiles, sec. 22-21-16. Set 5½-in. csg. 1,015 ft.; tstg. 1,-023 ft.

Triple M Oil Co. No. 1 Boisseau, sec. 34-21-16. S.D.; W.O. 1,925 ft.

G. H. Vaughn No. 1 Stiles, sec. 21-21-16. Set 6-in. csg. 1,016 ft.; tstd. dry; T.D. 1,605 ft.; P.B. 1,035 ft.

Nat Weisman No. 1 Stiles, NE cor. sec. 27-21-16. Set 6⅝-in. csg. 1,032 ft.; T.D. 1,037 ft.; comp.; pmp. 30 B.P.D.

Nat Weisman No. 2 Stiles, NW NW sec. 27-21-16. Drlg. sh. 1,200 ft.

Claiborne Parish

Harry Fotiades No. 1 King, sec. 11-20-5. Drlg. sh.&L. 4,645 ft.

M. J. Grogan No. 1 Whitman, C E½ NW NE sec. 2-20-15. Set 5½-in. csg. 5,173 ft.; T.D. 5,199 ft.; sat L. 5,179-87 ft. and 5,192-94 ft.; tstd. 168 B.P.D.; open tbg.; C.P. 200 lbs.; well died and used 3,000 gal. acd. tstg.

Gulf Oil Corp. No. 1 Patton, NW cor. sec. 12-20-5. Set 10¾-in. csg. 708 ft.

J. H. Henry et al No. 1 Tippett, sec. 33-21-4. Drlg. sh. 2,812 ft.

Hollifield & McFarland No. 1 Kilgore, C SE NE sec. 12-20-5. Sat. L. 5,376-82 ft. and 5,385-88 ft.; cg. ahd.

Lyons & Neely No. 1 Lowery, sec. 11-20-5. Drlg. L. 3,706 ft.

Magnolia Pet. Co. No. 2 Fowler, sec. 32-21-4. Drlg. L.&sh. 4,854 ft.

Magnolia Pet. Co. No. 3 Lloyd, C SW SE sec. 2-24-5. Sat. L. 5,255-64 ft.; set 7-in. csg. 5,254 ft.; tstg. 5,270 ft.

Oakes et al No. 1 Kilgore, NE cor. SE sec. 28-21-15. D.S.T. 4,188-4,225 ft.; tstd. dry in 5 min.; set 5¾-in. csg. 5,290 ft.; T.D. 5,313 ft.; set perf. lnr.; tstd. dry; washed with oil and acdz. with 2,000 gal. and 150 bbls. oil; swb. dry; think csg. seat gave away; recmt. csg.; cor. depth 5,270 ft.; cor. T.D. 5,-357 ft.

E. T. Oakes et al No. 1 H. W. Patton, C NW SW sec. 12-20-5. Sat. L. 5,321-31 ft. and 5,333-46 ft.; set 5½-in. csg. 5,324 ft.; T.D. 5,331 ft.; comp.; 255 B. P.D.; 10/64-in. csg.; T.P. 100 lbs.; set pkr.

A. O. Olson No. 1 Kennedy, sec. 26-21-5. R.U. and S.D.

Prairie O. & G. Co. No. 2 Lloyd, sec. 10-20-5. Set 10¾-in. csg. 748 ft.

Sells Pet. Co. No. 2-A Patton, C NE NE sec. 11-20-5. Sat. L. 5,378-84 ft. and 5,387-97 ft.; set 5½-in. csg. 5,376 ft.; tstg. 5,398 ft.

Sklar Oil Corp. No. 4 Kilgore, C SE SW sec. 11-20-5. Set 10¾-in. csg. 766 ft.

Sloan & Zook No. 2 Patton, T.F., sec. 1-20-5. Drlg. anhy. 4,200 ft.

Texas Co. No. 1 Tippett, sec. 33-21-4. Sat. L. 5,303-10 ft.; set 5-in. csg. 5,293 ft.; tstg. 5,318 ft.; comp.; pmp. 135 B.P.D.; T.D. 5,318 ft.

Union Prod. Co. No. 2 Brownfield, sec 5-19-5. T.D. 10,759 ft.; jnkd. and abd. 10,661 ft.

Union Prod. Co. No. 1-A Simms Unit, 660 ft. SW cor. sec. 29-20-5. R.U.

G. H. Vaughn No. 1 English, C NW SW sec. 30-21-4. Sat. L. 5,078-86 ft.; 5½-in. csg. set 5,076 ft.; comp.; 180 B.P. D.; ½-in. ck.; T.P. 120 lbs.; set on pkr.; T.D. 5,091 ft.

Weaver Oil Corp. No. 2 Edmonds, sec. 16-20-5. T.D. 5,851 ft.; D.&A.

Concordia Parish

Morrison & Co. No. 1 Winston, sec. 43-7-9e. Drlg. sd.&sh. 2,325 ft.

De Soto Parish

S. S. Alexander No. 1 Stoll, NE cor. sec. 5-12-16. O.W.W.O.; old T.D. 6,002 ft.; set short string 5½-in. csg. 5,479 ft. reperf. 5,420-40 ft.; tstg. S.W. 5,440 ft. cmtd. all perf. above 5,180 ft.; drld. out cmt. and perf. 5,420-44 ft.; set 2-in. tbg. with pkr. 5,360 ft.; T.D. 5,453 ft.; used 5,000 gal. acd. and tstd. S.W. and S.D.

Coleman et al No. 1 Franklin, NW cor. NE SE sec. 29-12-11. Drlg. sh. 2,591 ft.

Collins et al No. 1 Joiner, sec. 28-11-12. Fsg. for D.S.

Petroleum Heat & Power Co. No. 2 Kavanaugh, NE cor. NW SW sec. 7-11-11. Tstd. dry 2,874 ft.; W.O.

Pet. Heat & Power Co. No. 1 Rives, sec. 20-12-11. Tstd. dry 3,350 ft.; W.O.

Pet. Heat & Power Co. No. 1 Williams, W R., NW NE sec. 13-11-12. (Cor.); D.S.T. 2,800-18 ft.; S.G.; 7-in. csg. set 2,800 ft.; tstg. 2,827 ft.; W.O.; T.D. 2,827 ft.; tstd. S.G.; S.W. and abd.

Rodessa O. & R. Co. No. 1 Boone, 330 ft. S and W, C sec. 25-11-11. R.U.

Grant Parish

C. R. Bowers No. 1 Harrison Est., sec. 21-8-5. R.U.; S.D.

C. L. Thompson No. 1 McNeely Est., NE cor. sec. 10-6-3w. Ran Schlumberger; T.D. sh. 4,518 ft.; S.D.

La Salle Parish

Ark. Fuel Oil Co. No. 7-A Urania, 150 ft. SE cor. SW SW sec. 2-9-1e. Set 10-in. csg. 63 ft.; 7-in. csg. 1,495 ft.; tstg.; T.D. 1,509 ft.

Lincoln Parish

Harry Fotiades No. 1 Patton, C SE NW sec. 7-20-4. Drlg. sh. 1,950 ft.

Magnolia Pet. Co. No. 3 Patton hrs., C NW NW sec. 7-20-4. R.U.

O K Oil Co. No. 1 Lowery, 1,980 ft. N L, 635 ft. W L, sec. 7-20-4. Por. L. 5,-316-34 ft.; set 5½-in. csg. 5,314 ft.; T.D. 5,336 ft.; comp.; 55 B.P.H.; ¾-in. ck.; T.P. 300 lbs.

Madison Parish

Continental Oil Co. No. 1 Singer Mfg. Co., C NE NW sec. 3-15-11e. Set 15½-in. csg. 192 ft.; drlg. sh. 600 ft.

Natchitoches Parish

Roy Raines et al No. 1 Prudential Life Ins. Co., sec. 22-10-9w. Set 12-in. csg. 70 ft.; T.D. 1,250 ft.; fsg.

W. P. Ryan et al No. 1 Lambert, sec. 4-8-9. Top Bissm. sd. 2,952 ft.; D.S.T. 3,186-4,133 ft.; rec. 146 ft. mud in 28 min.; T.D. 4,133 ft.; S.D.

Red River Parish

Monte Oil Co. No. 1 McClelland, NW NW sec. 24-13-11. D.S.T. 967-74 ft. S.G.; D.S.T. 1,570-98 ft.; small S.G.; set 6-in. csg. 2,490 ft.; R.U. cable tool; sd. 2,530 ft., T.D.; W.O.S.R.

Sabine Parish

Hare et al No. 1 Stoby, SW cor. SE sec. 10-8-12. R.U. and S.D.

Hunter Co. No. 3 Bowman-Hicks, sec. 15-7-13. Acdzd.; tstd. dry; S.O. 2,550 ft.; comp.; pmp. 130 B.P.D.; T.D. 2,-602 ft.

Hunter Co. No. 4 Bowman Hicks, sec. 13-7-13. Set 6-in. csg. 2,255 ft.

F. B. King No. 1 Sabine Lbr. Co., sec. 19-7-13. Drlg. sh. 2,055 ft.

W. L. McClanahan No. 1 Frost Lbr. Co., sec. 22-9-13. D.S.T. 2,927-3,028 ft.; tstd. est. 1,000,000 ft. gas and 9 jts. mud; ¼-in. ck.; drlg. L. 3,385 ft.

Major Oil Co. No. 1 Bowman-Hicks Lbr. Co., sec. 7-7-12. Set 7-in. csg. 2,330 ft. comp.; 400 B.P.D.; ¼-in. ck.; T.P. 210 lbs.; C.P. 700 lbs.; T.D. 2,398 ft.

Major Oil Co. No. 2 Bowman-Hicks, C NE SE sec. 11-7-13. R.U.

F. W. Martin Drlg. Co. No. 1 Sabine Lbr. Co., C W½ NE NE sec. 26-7-14 T.D. 4,508 ft.; P.B. 3,500 ft.; to test show 3,545-75 ft.

Harry N. Morris No. 1-B Irving & Bishop, C SW NW sec. 18-7-12. R.U.

Plymouth Oil Corp. No. 1 Kezerle, sec. 3-7-13. Tstd. S.W. 2,494 ft.; S.D.

W. L. Posey No. 1-A Ramirez, sec. 12-7-13. Set 6-in. at 2,147 ft.; tstd. dry 2,535 ft.; S.W. and abd. 2,617 ft.

Albert Reich No. 1 Glaque, 330 ft. NE cor. SE NE sec. 27-7-14. Drlg. sh. 2,-090 ft.

H. M. Sneed No. 1 Leone, 330 ft. S line, 400 ft. W line, NW SE sec. 8-7-13. R.U.

J. J. Watson No. 1 Sabine, sec. 12-7-13.

Set 6-in. csg. 2,145 ft.; comp.; pmp. 120 B.P.D.; T.D. 2,510 ft.

Lee Whitehurst No. 1 Bowman-Hicks Lbr. Co., C W½ SE SE sec. 14-7-14. T.D. 2,125 ft.; S.D.; W.O.

Tensas Parish

H. V. Schumacker No. 4 Mount Plantation, sec. 39-11-12e. T.A. 2,450 ft.

Union Parish

Standard Oil Co. of La. No. 1 Frost Lbr., sec. 14-21-1e. Comp. fsg. job; reamed core hole; cg. R.&L.; no show, 9,670 ft.

Webster Parish

S. W. L. Backus No. 4 Pardee, sec. 3-22-11. D.S.T. 2,725-34 ft.; rec. 4 jts. oil and mud; T.D. 2,734 ft.; set 7-in. csg. 2,729 ft.; tstg. 2,734 ft.

Fohs Oil Co. No. 1 Crichton, sec. 33-21-10. Top lower Mar. 7,980 ft.; Bodcaw sd. 8,482-8,533 ft.; rng. 7-in. csg.; T.D. sdy. sh. 8,598 ft.

Hunt Oil Co. No. 8 Babb, sec. 13-21-10. Drlg. L.&sh. 4,850 ft.

Hunt Oil Co. No. 1 Bodcaw, C SW NE sec. 33-21-10. Drlg. sh.&L. 4,884 ft.

Hunt Oil Co. No. 2 Bodcaw, C NE SE sec. 33-21-10. Drlg. anhy. 4,430 ft.

Hunt Oil Co. No. 1 Davis, 660 ft. NE cor. sec. 23-21-10. Drlg. sh.&L. 4,573 ft.

Hunt Oil Co. No. 20 Hope, C NE NW sec. 24-21-10. Drlg. sh.&L. 4,978 ft.

Hunt Oil Co. No. 1 Pardee, sec. 24-21-10. R.U.

Hunt Oil Co. No. 4 Webb, sec. 13-20-10. Drlg. sh.&L. 3,528 ft.

Magnolia Pet. Co. No. 4 Cox, 660 ft. NE cor. NE SE sec. 23-21-10. O.W.W.O.; formerly comp. for est. 29,000,000 ft. gas; old T.D. 4,557 ft.; arng. deepen.

Magnolia Pet. Co. No. 1 Crichton Unit, sec. 33-21-10. Drlg. sd.&sh. 6,865 ft.

Magnolia Pet. Co. No. 3 Crichton, 795 ft. N line, 763 ft. W line, sec. 33-21-10. Holloway sd. 5,794-5,803 ft.; set 7-in. csg. 5,794 ft.; T.D. 5,808 ft.; comp.; 1,698 B.P.D.; ½-in. ck.; T.P. 250 lbs.; C.P. 600 lbs.

Magnolia Pet. Co. No. 1-C Pardee, C NW NE sec. 17-23-11. R.U.

Magnolia Pet. Co. No. 1 Robbins Unit, sec. 21-21-10. Drlg. sd. 7,517 ft.

Midstates Oil Corp. No. 1 Welori Lbr. Co., C NW NW sec. 3-20-10. Top Tr. Pk. 6,029 ft.; no Holloway sd.; set 9⅝-in. csg. 6,121 ft.; top lower Marine 8,072 ft.; Top Bodcaw (cuttings) 8,597 ft.; drlg. sd. 8,598 ft.

Harry Morgan No. 2 Hope, C SE SW sec. 24-21-10. R.U.

North American Oil Consol. Co. No. 1 Barrow, C NE NW sec. 21-21-10. R.U.

Ohio Oil Co. No. 4 Bodcaw, Acct. 4, sec. 13-21-10. Drlg. 50 ft.

Ohio Oil Co. No. 4 Cox, Acct. 2, C SW sec. 15-21-10. Drlg. sh. 6,168 ft.

Ohio Oil Co. No. 1 Gray, NW cor. SE NW sec. 28-21-10. Bodcaw sd. 8,301-48 ft.; 7-in. csg. 8,322 ft.; comp.; 112 B.P.D. dist. and est. 2,000,000 ft. gas; ⅝-in. ck.; T.P. 2,400 lbs.; C.P. 2,100 lbs.; T.D. 8,359 ft.

Ohio Oil Co. No. 1 A. H. Gray, Acct. 3, sec. 26-21-10. Drlg. sh.&L. 7,709 ft.

Ohio Oil Co. No. 4 Holloway, sec. 23-21-10. Old gas well; old T.D. 4,537 ft.; Holloway sd. 5,538-54 ft. and 5,601-08 ft.; set 4½-in. csg. 5,536 ft.; T.D. 5,633 ft.

Ohio Oil Co. No. 1 Jackson, sec. 27-21-10. No Holloway sd.; set 9⅝-in. csg. 5,600 ft.; Bodcaw sd. 8,121-75 ft.; rng. 7-in. csg.; T.D. 8,189 ft.; comp.; 423 B.P.D. dist. and est. 5,000,000 ft. gas; ¾-in. ck.; C.P. 2,650 lbs.; T.P. 2,500 lbs.; 7-in. csg. 8,145 ft.

Ohio Oil Co. and Union Prod. Co. No. 1 Tillman-Gleason, sec. 28-21-10. Drlg. sh.&L. 7,748 ft.

A. G. Oliphant No. 2 Hodges, C NW SE sec. 34-21-10. 9⅝-in. csg. 5,689 ft.; top lower Marine 7,667 ft.; drlg. sdy. sh. 7,983 ft.

Stanolind O. & G. Co. No. 1 Pardee Co., SW NE sec. 36-21-10. "D" stringer 8,473-98 ft.; Bodcaw sd. 8,565 ft.; cg. shly. sd. 8,606 ft.; set 5½-in. csg. 8,607 ft.; T.D. 8,642 ft.; on 45-min. test flwd. 98 bbls. oil with gas at est. rate of 750,000 ft. per day through 2-in. flow line from csg.; C.P. 450 lbs.; T.P. 480 lbs.; flwd. 118 bbls. in 3 hrs. on ¼-in. ck. through csg.; C.P. 890 lbs.; T.P. 0; tbg. plugged; will kill and pull tbg. to rerun.

Union Prod. Co. No. 1 Josey, sec. 27-21-10. Drlg. sh. 7,196 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Franciol, sec. 67-12s-3e. R.U.

Continental Oil Co. No. 1 Hebert, sec. 67-12s-3e. 10¾-in. csg. 1,510 ft.; T.D. 7,448 ft.; D.S. stk.; fsg.; P.B. 7,301 ft.; to sdtrk.; T.D. 9,501 ft.; P.B. 8,100 ft. 5¾-in. csg. 7,875 ft.; perf. 7,866-68 ft.: washing with oil to test; I.P. 35 bbls. dist.; 5/32-in. ck.

Anse La Butte—St. Martin Parish

Butte Oil Co. No. 2 Billeaud, sec. 117-9s-5e. Drlg. sd.&gvl. 604 ft.

Louisiana-Crusader No. 3 Central Oil Co., sec. 86-9s-5e. R.U.R.

Paul Fly et al No. 1 Moresi, sec. 118-9s-5e. T.D. 1,153 ft.; 7-in. csg. 1,128 ft.; pmpg. 40 B.P.D.

Mary G. Thomas No. 1 J. A. Broussard, sec. 117-9s-5e. S.D. 1,005 ft.

Bateman Lake—St. Mary Parish

Texas Co. No. 1 Wax Bayou, sec. 21-16s-12e. T.D. 2,309 ft.; 13⅜-in. csg. 1,885 ft.

Baton Rouge—East Baton Rouge Parish

Wm. Helis No. 2 Duplantier, sec. 65-7s-1w. Cd. sh.&hd. sd.; showed oil 6,454-65 ft.; T.D. 6,500 ft., oil and S.W. sd.; cg. ahead.

Wm. Helis No. 1 Harry Nelson, sec. 36-7s-1w. Cd. oil sd. 6,477-6,500 ft.; T.D. 6,502 ft.

Bay St. Elaine—Terrebonne Parish

F. L. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. S.D. 816 ft.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 6 Wilbert Sons Lbr. Co., sec. 66-9s-11e. 7-in. csg. 6,982 ft.; T.D. 7,342 ft.; prep. to drill ahead.

Bayou Choctaw—West Baton Rouge

Standard Oil Co. et al No. 1 Marley Cypress Co., sec. 29-8s-11e. Drk.

Bayou De Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 Gheens Realty Co., sec. 56-15s-20e. T.D. 7,010 ft.; T.D. of sdtrkd. hole 5,421 ft.; sdtrkd.; drlg. 5,442 ft.

Amerada Pet. Corp. No. 4 State, sec. 13-15s-20e. 13⅜-in. csg. 1,976 ft.; 9⅝-in. csg. 8,156 ft.; drlg. sd. 8,677 ft.

Amerada Pet. Corp. No. 2 St. Charles Ld. Co., sec. 13-15s-20e. 13⅜-in. csg. 2,123 ft.; drlg. sh. 5,712 ft.

Caillou Island—Terrebonne Parish

Texas Co. No. 29 State, sec. 17-23s-20e. Loc.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 23 School Ld., sec. 16-14s-13w. T.D. 5,786 ft.; 7-in. csg. 5,323 ft.; tstd. S.W.; P.B. to sidetrack; T.D. 2,959 ft.; flwd. oil and went dead; sanded up; S.D.

Burton-Sutton Oil Co. No. 24 School Ld., sec. 16-14s-13w. Drlg. sh.&L. 3,860 ft.

Burton-Sutton Oil Co. No. 25 School Ld., sec. 16-14s-13w. Drlg. sd. 6,016 ft.

Magnolia Pet. Co. No. 22 Cameron Meadows, sec. 21-14s-13w. T.D. 4,242 ft.; 9⅝-in. csg. 4,242 ft.; perf. csg. 4,221-30 ft.; flwg. P.L. oil; went dead; P.B. 4,232 ft.: drld. out to T.D. 4,321 perf. csg. 4,300-12 ft.; drlg. sdy. sh. 4,344 ft.

Cheneyville—Rapides Parish

Amerada Pet. Corp. No. 5 Weil Ld. Co., sec. 53-1s-2e. Cg. sh. 6,168 ft.

Texas Co. No. 3 Weil Ld. Co., sec. 53-1s-2e. Drlg. sh. 8,036 ft.; oil and gas shows; cd. 7,725-35 ft. and 7,802-14 ft.

Charenton—St. Mary Parish

Pan American Prod. Co. No. 2-B Ecuer, sec. 11-13s-9e. T.D. 1,899 ft.; 7-in. csg. 1,883 ft.; I.P. 224 B.P.D.; ¼-in. ck.

Pan American Prod. Co. No. 9 Laws Realty Co., sec. 31-13s-10e. Drk.

Pan American Prod. Co. No. 4 Robichaux, sec. 11-13s-9e. Drk.

Creole—Cameron Parish

Superior Oil Co.-Pure Oil Co. No. 2 State, Gulf of Mexico. Drlg. sh. 5,720 ft.

Darrow—Ascension Parish

Darrow Oil Co. No. 1 Dennis, sec. 68-10s-2e. T.D. 2,150 ft.; S.D.

Humble O. & R. Co. No. 18 Community, sec. 30-10s-2e. T.D. 6,958 ft.; 7-in. csg. 6,975 ft.; I.P. 684 B.P.D.; ¼-in. ck.

Kiva Oil Co. No. 1 Dupiessis, sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 6 Dog Lake, sec. 5-22s-16e. Drlg. sh. 4,433 ft.

Four Isle—Terrebonne Parish

Texas Co. No. 10 State, sec. 24-21s-16e. R.U.

Gibson—Terrebonne Parish

Shell Pet. Corp. No. 1 Kuntz, sec. 40-17s-15e. Drlg. sd.&sh. 3,080 ft.

Shell Pet. Corp. No. 6 Pellican, sec. 20-17s-15e. Drlg. sdy. sh. 8,320 ft.

Fausse Point—Iberia Parish

Texas Co. No. 4 State, sec. 35-11s-8e. 18⅝-in. csg. 90 ft.; top sd. 7,912 ft.; top salt 6,595 ft.; T.D. 9,246 ft.; 7⅝-in. csg. 9,236 ft.; T.D. 9,435 ft.; 5½-in. csg. 9,345 ft.; perf. csg. 9,251-61 ft. made sqz. job; P. B. 9,261 ft.; perf. csg. 7,910-35 ft.; swbd. wash wtr.; S. S.O.; reperf. csg. 7,935-9,000 ft.; tstg. with 215 holes; I.P. 25 B.F.P.D., 15% b.s.&w.; 10/64-in. ck.; 1,300 lbs. W.P.

Garden Island—Plaquemines Parish

Texas Co. No. 29 State, sec. 38-23s-33e. Cg. sd.&sdy. sh. 6,317 ft.

Hackberry—Cameron Parish

W. T. Burton No. 1 Duhon, sec. 29-12s-10w. R.U.

W. T. Burton No. 1 F. Lacy, sec. 22-12s-10w. T.D. 3,683 ft.; 7-in. csg. 3,462 ft. tstg.

Darryl Davis No. 1 Bickford, sec. 39-12s-10w. Drlg. sh. 244 ft.

Gulf Oil Corp. No. 1 Noble, sec. 22-12s-10w. Drlg. L. 2,863 ft.

John Merrick No. 2 Vincent, sec. 28-12s-10w. S.D. 250 ft.

Superior Oil Co. No. 2 Benson, sec. 30-12s-10w. Drlg. sh. 6,196 ft.

Texas Co. No. 24-B State, sec. 12s-9w. T.D. 8,052 ft.; blew out; stk. D.S.; hole cleaned out to 7,659 ft.; P.B. 6,578 ft.; T.D. 6,686 ft.; P.B. to 6,480 ft.; sdtrkd.; drld. to 6,670 ft.; P.B. to 5,900 ft.; to sdtrk.

Union Sulphur Co. No. 1 Doiron, sec. 37-12s-10w. 7-in. csg. 4,876 ft.; T.D. 5,940 ft.; S.T.; T.D. 5,023 ft.; P.B. 5,000 ft.; sdtrkd. hole; T.D. 6,236 ft.; 5-in. csg. 5,830 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 2 State, sec. 37-17s-9e. R.U.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1-A Roane Sugar Co., sec. 38-13s-9e. T.D. 10,404 ft.; top brkn. sec. oil show 10,303 ft.; 7-in. csg. 10,404 ft.; perf. csg. 10,390-96 ft.: tstd. mud and S.W.; sqzd. off; drlg. 10,555 ft.

Jennings—Acadia Parish

F. W. Bennett No. 2 Brethern, sec. 41-9s-2w. T.D. 7,392 ft.; 6⅝-in. csg. 7,392 ft.; perf. csg. 7,350-80 ft.; I.P. 360 B. P.D.; 15/64-in. ck.

W. T. Burton No. 6 Roboria, sec. 41-9s-2w. Drlg. sh. 6,157 ft.

Frio Oil Co. No. 1 Gulf fee, sec. 45-9s-2w. T.D. 7,092 ft.; run 7-in. csg.

Frio Oil Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. T.D. 6,687 ft.; stk. D.S.; fsg.

Glassell & Glassell No. 5 Trushell, sec. 42-9s-2w. R.U.

T. G. Markley No. 1 Gulf Ld., sec. 45-9s-2w. T.D. 7,314 ft.; 7-in. csg. 7,276 ft. I.P. 650 B.P.D.; ¼-in. ck.

W. S. Noble et al No. 1 Ed Prather, sec. 45-9s-2w. R.U.

Pet. Heat & Power Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. T.D. 3,770 ft.; P. B. 1,055 ft.; to stdrk.; cd. oil sd. 1,760 ft.; R.U. to pmp.

Pet. Heat & Power Co. No. 2 Iowa-Jennings, sec. 45-9s-2w. Drlg. sh. 2,010 ft. no report.

Pet. Heat & Power Co. No. 1 Smith, sec. 45-9s-2w. S.D. 1,156 ft.

Stanolind O. & G. Co. No. 112 Crowley Oil & Mineral Co., sec. 48-9s-2w. 10¾-in. csg. 1,395 ft.; drlg. sd. 5,582 ft.

Superior Oil Co. No. 4 Iowa-Jennings, sec. 41-9s-2w. Drlg. sd. 4,750 ft.

Superior Oil Co. No. 3 Jules Clement, sec. 46-9s-2w. T.D. 6,769 ft.; 7-in. csg. 6,734 ft.; I.P. 498 B.P.D.; 14/64-in. ck.

Superior Oil Co. No. 4 Clement, sec. 46-9s-2w. Drk.

Superior Oil Co. No. 7 Jennings-Heywood, sec. 41-9s-2w. Drk.

Superior Oil Co. No. 13 Leckelt, sec. 42-9s-2w. Drlg. sh. 7,406 ft.

Superior Oil Co. No. 14 Leckelt, sec. 42-9s-2w. T.D. 7,470 ft.; 7-in. csg. 7,470 ft.; drlg. sh. 7,594 ft.

Victor Weisse No. 1 Clement, sec. 46-9s-2w. 6⅝-in. csg. 3,032 ft.; T.D. 3,255 ft.; fsg. for tbg.

Lafitte—Jefferson Parish

Carter-Perrin & Brian No. 1 Lucien, Adams, sec. 9-17s-24e. Dredge canal.

Texas Co. No. 11 Lafitte, sec. 19-17s-24e. Drlg. sh. 4,856 ft.

Texas Co. No. 3 Marrero Ld. Co., sec. 29-17s-24e. R.U.

Lake Barre—Terrebonne Parish

Texas Co. No. 16 State, sec. 32-21s-19e. T.D. 4,280 ft.; P.B. 2,734 ft.; drlg. anhy. 2,963 ft.

Texas Co. No. 42 State-Lake, sec. 40-21s-19e. 9⅝-in. csg. 6,678 ft.; drlg. sd. rk. 7,222 ft.

Lake Long—Lafourche Parish

Fohs Oil Co. No. 4 State, sec. 64-17s-19e. 10¾-in. csg. 2,707 ft.; T.D. 10,239 ft.; 7-in. csg. 10,239 ft.; T.D. 10,437 ft.; set 5-in. lnr. on bttm.; perf. csg. 10,416-20 ft.; comp. for dist. producer.

Lake Pelto—Terrebonne Parish

Texas Co. No. 19 State-Lake Pelto, sec. 17-23s-18e. T.D. 6,315 ft.; stk. D.S.; sdtrkd.; drlg. sd.&sh. 6,773 ft.

Leesville—Lafourche Parish

Wm. Helis No. 1-A Citv of New Orleans, sec. 35-21s-22e. Drlg. sh. 5,100 ft.

Texas Co. No. 69 Leeville, sec. 27-21s-22e. R.U.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Wurzlow, sec. 32-19s-19e. Top sd. S.G. 8,423 ft.; T.D. 8,566 ft.; 9⅝-in. csg. 8,521 ft.; found split csg. 7,063-73 ft.; found cmt. inside of D.S.; washing over stuck D.S. prep. to sdtrk.

Union Prod. Co. No. 1 Fundenburk, Unit 1, sec. 50-19s-19e. T.D. 11,933 ft.; abd.

Lockport—Calcasieu Parish

Continental Oil Co. No. 1 J. H. Moss, sec. 8-10s-9w. 10¾-in. csg. 986 ft.; T.D. 6,737 ft.; S.W. sd.; P.B. 5,340 ft.; flwd. oil and wash wtr.; sanded up; pulling tubing.

New Iberia—Iberia Parish

Canal Oil Co. No. 10 Bernard, sec. 54-12s-7e. T.D. 4,138 ft.; drlg. salt in sdtrkd. hole, 4,256 ft.

Canal Oil Co. No. 4 Sabatier, sec. 54-12s-7e. Drlg. sd. 2,332 ft.

H. Fotiades No. 6 Gulf Ld., sec. 25-12s-7e. T.D. 4,571 ft.; 7-in. csg. 4,520 ft.; I.P. 356 B.P.D.; ¼-in. ck.

Wm. Helis No. 5 Bolivar, sec. 56-12s-7. T.D. 4,337 ft.; salt; P.B. and sdtrkd.; T.D. 3,594 ft.; 7-in. csg. 3,100 ft.; made sqz. job 3,070-60 ft.; P.B.; drlg. out to 3,145 ft.; swbd. dry; plg. scrn.; P.B. 3,170 ft.; W.O.S.R.

Wm. Helis No. 7 Bullock and Burke, sec. 25-12s-7e. Cg. sd. 5,606 ft.

Texas Co. No. 4 Bryant, sec. 25-12s-7e. T.D. 5,054 ft.; 7-in. csg. 5,039 ft.; perf. csg. 4,310-45 ft.; I.P. 160 B.P.D.; pmpg.

Texas Co. No. 2 Burke, sec. 56-12s-7e. Drlg. sh. 6,772 ft.

Texas Co. No. 7 Duke, sec. 26-12s-7e. Cg. sd. 5,600 ft.

Texas Co. No. 2 Schwing, sec. 71-12s-7e. Bldg. drk.

Texas Co. No. 4 Grelino, sec. 25-12s-7e. 10¾-in. csg. 779 ft.; drlg. sd.&sh. 3,076 ft.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 3 Federal Ld. Bnk., sec. 34-8s-1e. T.D. 9,143 ft.; P.B. 7,370 ft.; to test 7,194-7,210 ft.

Port Barre—St. Landry Parish

Emerson Oil Co. No. 5 Sibille Oil Co., sec. 20-6s-5e. T.D. 3,475 ft; 5-in. csg. 3,470 ft.; tstd. S.W.; P.B. 3,432 ft.; tstd. S.W.; perf. csg. 3,405-22 ft.; W. O.S.R.

T. C. Markley No. 1 Lahaye, sec. 4-6s-5e. Drlg. sh. 4,690 ft.

Pan American Prod. Co. No. 1 Lahaye, sec. 4-6s-5e. T.D. 5,426 ft., salt; top salt 5,422 ft.; P.B. to 3,900 ft.

Y. D. Spill No. 1 Gaudet, sec. 4-6s-5e. T.D. 1,000 ft.; S.D.

Texas Co. No. 22 Botney Bay Lbr. Co., sec. 4-6s-5e. T.D. 3,569 ft.; P.B. 3,434 ft.; set csg. 3,434 ft.; perf. csg. 3,370-3,400 ft.; P.B. 3,403 ft.; to W.O.

Potash—Plaquemines Parish

Humble O. & R. Co. No. 36 Orleans Lve. Bd., sec. 14-18s-15e. T.D. 7,500 ft.; rng. protection csg.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp. No. 1-A Orleans Levee Bd., sec. 18-19s-17e. M.I.R.

Gulf Ref. Co. No. 4 State, sec. 17-19s-17e. T.D. 5,700 ft.; 9⅝-in. csg. 5,560 ft.; oil sd. 9,228-29 ft., 9,234-36 ft. and 9,617-18 ft.; oil and gas shows 9,617-94 ft.; top sd. oil show 10,079 ft.; drlg. sdy. sh. 10,571 ft.

Gulf Ref. Co. No. 5 State, sec. 17-19s-17e. Loc.

Gulf Ref. Co. No. 6 State, sec. 17-19s-17e. Driving piling.

Raceland—Lafourche Parish

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., sec. 34-15s-19e. 18⅝-in. csg. 262 ft.; drlg. sh. 10,427 ft.

Amerada Pet. Corp. No. 2 South Coast Corp., sec. 35-15s-19e. 11¾-in. csg. 2,666 ft.; drlg. sh. 10,380 ft.

Tide Water Asso. Oil Co. No. 1 South Coast Corp., sec. 33-15s-19e. R.U. and S.D.

Sorrento—Ascension Parish

Pan American Prod. Co. No. 11 United Ld. Co., sec. 15-10s-4e. 10¾-in. csg. 308 ft.; T.D. 1,667 ft.; P.B. 1,151 ft.; W.O.C.

Sorrento Pet. Corp. No. 2 White, sec. 22-10s-4e. R.U.

South Roanoke—Jeff Davis Parish

Continental Oil Co. No. 1 Joe Sturdivant, sec. 36-10s-4w. Cg. sdy. sh. 9,713 ft.

Union Sulphur Co. No. 2 T. R. S. Farms, sec. 23-10s-4w. Drlg. sh. 8,577 ft.

Starks—Calcasieu Parish

Lutcher-Moore Co. No. 5 fee, sec. 19-9s-12w. T.D. 4,153 ft., salt; P.B. 3,987 ft.; P.B. 3,845 ft.; run csg.

J. R. Turnbull No. 1 Industrial Lbr. Co., sec. 19-9s-12w. Top salt 2,270 ft.; S.D.; 2,273 ft.; P.B. 1,150 ft.; to sdtrk.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 863 fee, sec. 29-9s-10w. T.D. 3,367 ft.; tried to blow out; rmg.

Timbalier Bay—Lafourche Parish

Gulf Oil Corp. No. 4 State, sec. 36-23-21e. T.D. 7,373 ft.; twisted off drill collar; sdtrkd. jnk.; cd. sd. 5,332-36 ft.; tstd. 3 stands drlg. mud. oil and sd.; cd. oil sd. 5,336-43 ft.; T.D. 7,159 ft.; P.B. 6,500 ft. to strghtn. hole.

Valentine—Lafourche Parish

Wm. Helis No. 2 Valentine Sugar, sec. 3-17s-20e. Drlg. sh. 7,056 ft.

Pan American Prod. Co. No. 1-A Community, sec. 99-17s-20e. Loc.

Pan American Prod. Co. No. 2-B Community, sec. 58-17s-20e. T.D. 9,328 ft.; D.S. stk.

Pan American Prod. Co. No. 1 A. Robichaux, sec. 3-17s-20e. Loc.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 8 Manhattan Ld. & Fruit Co., sec. 26-21s-30e. 24-in. csg. 91 ft.; drlg. sdy. sh. 4,441 ft.

Villa Platte—Evangeline Parish

Amerada Pet. Corp. No. 1 A. Fournier, sec. 44-3s-2e. T.D. 9,046 ft.; 6⅝-in. csg. 9,037 ft.

Continental Oil Co. No. 1 Oscar Pitre, sec. 44-3s-2e. Drlg. sh.&sd. 7,921 ft.

Continental Oil Co. No. 1 Opelousas, St. Landry, sec. 44-3s-2e. Drlg. sh. 1,521 ft.

Continental Oil Co. No. 1 Tate & McDaniel, sec. 44-3s-2e. Drlg. sdy. sh. 6,338 ft.

Continental Oil Co. No. 1 T. E. Vidrine, sec. 47-3s-2e. Drlg. sh.; T.D. 10,506 ft.; cmtd. bttm. of hole with cmt.; P.B. 9,014 ft.; perf. csg. 8,975-9,000 ft.; tstd. S.W.

Continental Oil Co. No. 1 J. E. Vidrine, sec. 46-3s-2e. Cg. oil sd. 9,080 ft.

Vinton—Calcasieu Parish

J. B. Reddich No. 3 Vincent, sec. 34-10s-12w. Loc.

Welsh—Jeff Davis Parish

A. V. Peters No. 3 fee, sec. 22-9s-5w. T.D. 1,020 ft.; 6⅝-in. csg. 950 ft.; stk. baller; S.D.

Stanolind O. & G. Co. No. 2 Conover, sec. 20-9s-5w. T.D. 7,353 ft.; well tried to blow out; stk. D.S.; fsg. 2,834 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 3 Calcasieu Natl. Bnk., sec. 1-9s-6w. Drlg. sd. 9,048 ft.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w. T.D. 5,106 ft.; P.B. to approx. 500 ft.; T.D. 3,925 ft.; D.S. stk.; jnkd. and abd.

Avoyelles Parish

G. C. Koch et al No. 1 Kelone, sec. 21-2n-3e. 10¾-in. csg. 987 ft.; S.D. 6,021 ft.; prep. to resume drlg.

Calcasieu Parish

Sun Oil Co. No. 1 Lutcher-Moore Lbr. Co., sec. 1-8s-13w. Drlg. sd.&sh. 9,480 ft.

Republic Prod. Co. No. 1 Sabine Tram, sec. 25-8s-14w. Old T.D. 9,620 ft.; fsg. for stk. D.S.

Union Sulphur Co. No. 1 Drew-Manuel, sec. 4-10s-11w. Drlg. sh.&L. 6,019 ft.

Wheeler Oil Corp. No. 2 Sch. Ld., sec. 16-9s-7w. 15½-in. csg. 46 ft.; S.D. 641 ft.

Cameron Parish

Humble O. & R. Co. No. 1 K. B. Hanzen, 466 ft. S and E, NW cor. SW¼ sec. 9-12s-6w. Run 13⅜-in. csg. 2,703 ft.; drlg. sh. 8,432 ft.

Pure Oil Co. No. 1 Calcasieu Natl. Bnk., sec. 18-12s-4w. Drlg. sd. 3,314 ft.

Ash, Robinson No. 1 Mermentau Mineral Ld. Co., sec. 30-14s-6w. 10¾-in. csg. 910 ft.; drlg. sh. 5,223 ft.

Superior Oil Co. No. 1 Seils, sec. 5-15s-8w. T.D. 6,350 ft.; 10¾-in. csg. 6,350 ft.; T.D. 9,551 ft.; fsg.

Iberia Parish

Texas Co. No. 1 Bayless-Jones, sec. 58-12s-5e. T.D. 8,250 ft.; 9⅝-in. csg. 8,242 ft.; top salt 8,683 ft.; T.D. 9,031 ft. P.B. 8,063 ft.; perf. csg. 8,170-8,210 ft.; I.P. 325 bbls., 37-grav. oil per day; 10/64-in. ck.

Texas Co. No. 1 State Lake-Pelgneur, Twp. 12s-5e. Bldg. drk.

Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. T.D. 9,101 ft.; P.B. and sdtrkd. at 5,788 ft.; T.D. 7,020 ft.; P.B. 6,385 ft.; to sdtrk.; T.D. 7,623 ft.; P.B. 7,176 ft.; to sdtrk.; T.D. 7,348 ft.; 9⅝-in. csg. 7,263 ft.; T.D. 9,667 ft.; set 2,990 ft. of 5⅞-in. csg. 9,667 ft.; drld. plug to 9,667 ft.; well blew out; blowing dry gas; capped well; S.I.

Jeff Davis Parish

Union Sulphur Co. No. 1 H. J. Liggett, sec. 36-7s-5w. R.U.

Jefferson Parish

Julius Szodomka No. 1 Carroll, sec. 12-12s-11e. S.D. 4,700 ft.

Lafourche Parish

Sun Oil Co. No. 1 Dilbert Stark, Brown Cypress Co., sec. 70-15s-15e. R.U.

Texas Co. No. 1 La Terre, sec. 1-20s-21e. Drlg. sdy. sh. 3,944 ft.

Orleans Parish

W. T. Burton No. 1 State-Lake Pontchartrain, Twp. 10s-13e. R.U.R.

Plaquemines Parish

Gulf Oil Corp. No. 1 Grand Prairie Lve Dist., sec. 6-20s-19e. Cd. sd., sh. and shells, showing oil 5,824-26 ft.

Rapides Parish

J. J. Farrell No. 1 W. P. Aertker, sec. 16-4n-1e. Drk.

St. Bernard Parish

Gulf Ref. Co. No. 3 State Lake, Twp. 12s-15e. 13⅜-in. csg. 1,558 ft.; 9⅝-in. csg. 6,486 ft.; drlg. brkn. sd. 9,586 ft.

St. James Parish

Continental Oil Co. No. 1 Colonial Sugars Co., sec. 46-12s-5e. T.D. 254 ft.; run 18⅝-in. csg.

Continental Oil Co. No. 1 Realty Operators, sec. 17-12s-17e. 18⅝-in. csg. 302 ft.; 13⅜-in. csg. 2,473 ft.; T.D. 6,501 ft.; T.D. 7,013 ft.; 9⅝-in. csg. 6,520 ft.; cg. sh. 7,319 ft.

St. John the Baptist Parish

Shell Pet. Corp. No. 1 Godchaux, sec. 97-11s-7e. R.U.

St. Martin Parish

Shell Pet. Corp. No. 1 Jeanerette Lbr. Co., sec. 14s-12e. Cg. sd.; no show, 9,075 ft.

Texas Co. No. 6 State Lake Mongoulois, sec. 10-10s-9e. R.U.

Texas Co. No. 11 St. Martin Ld. Co., sec. 21-8s-7e. Drlg. S.W. sd. 7,276 ft.

St. Tammany Parish

Ozro B. Phillips No. 1 A. J. Planche, sec. 28-6s-10e. S.D. 3,100 ft.

Terrebonne Parish

Barnsdall Oil Co. No. 1 R. R. Barrow, Inc., sec. 41-17s-18e. Drlg. sh. 400 ft.

Fohs Oil Co. No. 1 Buckley & Bourg, sec. 77-19s-17e. Stk. 7-in. csg. at 11,684 ft.; T.D. 13,333 ft.; cmtd. 1,957 ft. of 5-in. csg. at 13,301 ft.; perf. csg. 13,254-66 ft.; C.O.; connections froze; S.I.

Fohs Oil Co. No. 1 State, sec. 41-19s-19e. 18⅝-in. csg. 246 ft.; cd. sd. S.G. 6,894-9,226 ft.; T.D. 12,511 ft.; 7-in. csg. 12,215 ft.; T.D. 12,898 ft.; W.O.O.

Shell Pet. Corp. No. 1 Peters, sec. 73-18s-18e. Drlg. sh. 4,042 ft.

Shell Pet. Corp. No. 1 Realty Operators, sec. 10-18s-18e. 13⅜-in. csg. 2,461 ft.; T.D. 8,315 ft.; fsg.

Texas Co. No. 1 State, Callau Island Bay, Twp. 23s-14e. Loc.

Vermilion Parish

Magnolia Pet. Co. No. 1 J. B. Ferguson, sec. 5-12s-2w. 13⅜-in. csg. 3,084 ft.; T.D. 9,144 ft.; P.B. 7,150 ft.; tstd. 1,350 lbs. W.P. 16 min. on D.S.T., 1,140-50 ft.; recvd. mud and dist.; rng. csg.

Vernon Parish

W. T. Burton No. 1 Gulf Lbr. Co., sec. 32-1n-6w. Loc. abd.

Mike Halbouty et al No. 1 Gulf Lbr. Co., sec. 15-1n-6w. R.U.R.

ARKANSAS

Columbia County

Fohs Oil Co. No. 1 Phillips, C NW SW sec. 15-17-19. Drlg. sh.&shlls. 1,700 ft.

Standard Oil Co. of La. No. 1 T. Crumpler, sec. 15-17-19. Drlg. sd.&sh. 2,605 ft.

G. H. Vaughn No. 1 Garrett, C NE SE sec. 14-17-20. R.U.

O. F. Whittaker No. 1 C. C. Hall, 70 ft. W line, 52 ft. S line, NW NW sec. 11-15-20. R.U.

Craighead County

Tannark, Inc., No. 1 Ruby M. Martin, 580 ft. N line, 80 ft. E line, sec. 35-14n-3e. R.U.

Lafayette County

Standard Oil Co. of La. No. 2 McKean, 660 ft. SW cor. SW SE sec. 7-16s-22w. Set 7-in. csg. 7,196 ft.; T.D. L. 7,257 ft.; comp.; flwd. 122 B.P.H.; open tbg.; on 3-hr. test; now on 7/64-in. ck.; C.P. 900 lbs.; T.P. 750 lbs.; T.D. 7,257 ft.

Standard Oil Co. of La. No. 1 J. L. Warren, 1,980 ft. E line, 610 ft. N line, sec. 18-16-22. R.U.

Little River County

M. E. Sanderson No. 1 Pinny; O.W.W.O.; reported abd. 1,300 ft.; NE cor. NE SW sec. 6-13-30. Wsg. to bttm.

Joe G. Strahan et al No. 2 Dierks Lbr. Co. Top L. 2,425 ft.; cg. 2,990 ft.

Lonoke County

J. F. Russell No. 1 Gunter, sec. 17-5n-10w. Drlg. 820 ft.

Miller County—Rodessa

F. W. Burford No. 1 E. B. Mitchell, SE cor. SW SW sec. 2-20-28. Comp.; 23 B. P.H.; ½-in. ck.; T.P. 75 lbs.; C.P. 750 lbs.; perf. csg. 6,133-63 ft.; set 5½-in. csg. 6,166 ft.; T.D. 6,170 ft.

F. W. Buford No. 2 Mitchell, 330 ft. NW cor. NE NW sec. 11-20-28. Drlg. sh.& anhy. 5,825 ft.

Red River Valley Oil Co. No. 1 Beck, sec. 34-15-26. Set 10¾-in. csg. 128 ft.; S.D. fuel 1,450 ft.

Texas Canadian Oil Corp. No. 2 Dickson, 330 ft. NE cor. SE NW sec. 11-20-28. Drlg. 2,385 ft.

Nevada County

Benedum & Trees Oil Co. No. 1 Blakeley & Suckle, 330 ft. SE cor. sec. 4-14-20. R.U.

B. L. Webb No. 1 Boswell, sec. 5-14-20. Set 10-in. csg. 63 ft.

Bruce E. Wallace No. 2 Haynie, SE cor. SE NE sec. 5-14-21. Sdy. sh. 1,194-1,204 ft.; tstd. inud, S.W. and oil 1,198-1,214 ft.; 30 min.; W.O.; T.D. 1,214 ft. set 6-in. csg. 1,198 ft.; swbd. est. 10 bbls. oil; W.O.S.R. 1,214 ft.

Pulaski County

Coker Oil Corp. No. 1 Stone, sec. 36-3n-11w. Set 12½-in. csg. 108 ft.

A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW sec. 2-1s-13e. T.D. 2,900 ft.; lost circ.; P.B. surf.; drlg. out cmt. 2,900 ft.

Union County—Schuler

R. T. Adams No. 1 F. W. Powledge, sec. 7-18-17. Drlg. rd.&gr. sh. 4,887 ft.

Alice Sydney Oil Co. No. 4 Powledge, SW cor. NW SE sec. 7-18-17. Drlg. rd. &gr. sh. 5,992 ft.

Atlantic Ref. Co. No. 1 Dumas, NW cor. NE NW sec. 21-18-17. Drlg. rd. sdy. sh. 7,360 ft.

E. M. Jones No. 3-A Murphy Ld. Co., NE cor. SE NE sec. 19-18-17. Cg. rd. &gr. sh. 5,863 ft.

E. M. Jones No. 1 Rogers, SW SW sec. 16-18-17. Top Jones sd. 7,570 ft.; cd. to 7,632 ft.; set 7-in. csg. 7,616 ft.; T.D. 7,637 ft.

Lion Oil Ref. Co. No. 1 Clarence, SW cor. Lot 7, SW sec. 7-18-17. Drlg. rd.&gr. sh. 6,165 ft.

Lion Oil Ref. Co. No. 1 Dee, sec. 17-18-17. Drlg. rd.&gr. sh. 4,150 ft.

Lion Oil Ref. Co. No. 2 Marcus, 330 ft. SE cor. Lot 3, SE sec. 18-18-17. Set 16-in. csg. 97 ft.; T.D. 100 ft.

Lion Oil Ref. Co. No. 1 Marvin, NE cor. Lot 7, SW sec. 7-18-17. Drlg. rd. sdy. sh. 6,682 ft.

Lion Oil Ref. Co. No. 3 Mayfield, sec. 18-18-17. Top Jones sd. 7,552 ft.; top L. 7,659 ft.; set 7-in. csg. 7,611 ft.; T.D. 7,720 ft.; comp.; 411 B.P.D.; ¼-in. ck.; T.P. 725 lbs.; C.P. 800 lbs.; perf. 7,595-7,615 ft.

Lion Oil Ref. Co. No. 4 Mayfield, C Lot 3, NW sec. 18-18-17. Drlg. rd. sdy. sh. 6,778 ft.

Lion Oil Ref. Co. No. 5 Mayfield, sec. 18-18-17. Drlg. rd. sh. 4,456 ft.

Lion Oil Ref. Co. No. 6-B Edna Morgan, sec. 18-18-17. D.S. stk. 2,900 ft.; T.D. 7,257 ft.

Lion Oil Ref. Co. No. 1 Nelson, sec. 18-18-17. Top Jones sd. 7,535 ft.; top L. 7,640 ft.; set 7-in. csg. 7,693 ft.; perf. 7,582-7,604 ft.; wsg. to test.

Marine Oil Co. No. 1 Callowav, SE cor. Lot 4, NW sec. 18-18-17. Drlg. rd.& gr. sh. 5,081 ft.

Phillips Pet. Co. No. 3 Marks, C Lot 2 Top Jones sd. 7,504 ft.; top L. 7,608 ft.; set 7-in. csg. 7,784 ft.; T.D. 7,806 ft. perf. csg. 7,648-55 ft.; flwd. 181 B.P. H.; ⅛-in. ck.; T.P. 1,200 lbs.; C.P. 2,450 lbs.; at gas-oil ratio 700/1; will kill and recomp.

Phillips Pet. Co. No. 4 Marks, sec. 18-18-17. Drlg. rd. sh. 3,875 ft.

Roberts & Murphy No. 1 Justiss, 330 ft. SE cor. Lot 6, SW sec. 7-18-17. Set 10¾-in. csg. 1,771 ft.; drlg. rd.&gr. sh. 5,534 ft.

Union County—Other

Ark. Southern Oil Corp. No. 3-A Simmons, sec. 15-18-13. Set 7-in. csg. 2,222 ft.; T.D. 2,303 ft.; drld. plug; blg. to test.

J. R. Lockhart No. 1 Rauiston, sec. 12-17-14. Cd. 2,984-89 ft. and 2,989-92 ft.; rec. 1 ft. ash and 2 ft. sd.; S.O. on last core; D.S.T. 2,975-92 ft.; rec. 60 ft. mud, 280 ft. S.W. and 730 ft. oil in 25 min.; W.P. 70 lbs.; B.H.P.; 1,700 lbs.; ¼-in. cks.; arng. set csg.

Joe Modisette et al No. 2 Union Sawmill Co., sec. 8-18-12. Set 13⅜-in. csg. 240 ft.; drlg. sdy. sh. 1,650 ft.

Phillips Pet. Co. No. 5 Bilyew, 460 ft. N line, 660 ft. W line, sec. 9-16-15. O.W.W.O.; former Shell dry gasser; comp.; blowing 31,000,000 ft. daily; old T.D. 2,294 ft.; cg. 2,315 ft.

W. D. Wingfield, Tr. No. 2 Kidd Est., SE cor. NW SW sec. 15-18-13. Sd. S.D. 2,257-2,300 ft.; set 6-in. csg. 2,250 ft.; T.D. 2,300 ft.; W.O.S.R.

TEXAS

Week Ending June 25

GULF COAST FIELDS

Lockridge—Brazoria County

Gulf Oil Corp. No. 7-A Wilkes and Smith, J. W. Hall Sur. No. 11. T.D. 6,369 ft.; 5-in. csg. 6,369 ft.

Hastings Field—Brazoria County

Humble O. & R. Co. No. 7 J. E. Alexander, H.T.&B. Sur. No. 28. Drk.

Stanolind O. & G. Co. No. 5-A W. H. Avitts, A.C.H.&B. Sur. No. 1. T.D. 6,080 ft.; 5¾-in. csg. 6,080 ft.

Stanolind O. & G. Co. No. 9 T. C. Edwards, Wm. Henry Sur. Drk.

Stanolind O. & G. Co. No. 3 Froberg, H. Stevens Sur. T.D. 1,300 ft.; W.O.C.

Stanolind O. & G. Co. No. 7-C H. Moore, R. A. Magee Sur. Loc.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 1 David Kaufman, C. Breen Sur. P.B. and sidetracked; T.D. 10,268 ft.; 7-in. csg. on bttm.; tstg.

Harrison & Abercrombie No. 1 I. N. Trover, Chas. Breen Sur. 9⅝-in. csg. 7,010 ft.; T.D. 10,133 ft.; tstg.

Harrison & Abercrombie No. 1 C. Larsen, Chas. Breen Sur. Drk.

Harrison & Abercrombie No. 1 West Texas Abst. Co., C. Breen Sur. T.D. 7,000 ft.; run 9⅝-in. csg.

West Columbia—Brazoria County

Adrian Moore No. 4 Gulf fee, G. Tennille Sur. Drlg. sh. 3,510 ft.

Frost & Dunman No. 1 Mary C. Masterson, G. Tennille Sur. Drlg. sh. 3,430 ft.

Mike Hogg No. 2 Hogg, M. Varner Sur. Drlg. sh. 4,212 ft.

Merrick Oil Co. No. 2 T. L. Smith, G. Tennille Sur. Drlg. sh. 4,520 ft.

Sterling O. & R. Co. No. 2 Powers, G. Tennille Sur. T.D. 5,625 ft.; 7-in. csg. 5,580 ft.

Texas Co. No. 24 Abrams, G. Tennille Sur. Drlg. sh. 3,530 ft.

Texas Co. No. 25 W. H. Abrams, G. Tennille Sur. Drk.

Texas Co. No. 3 Rebecca Goldman, G. Tennille Sur. R.U.

Cedar Point Field—Chambers County

Standard Oil Co. of Texas-Salt Dome Oil Corp. No. 1-94 State. Prep. to spud.

Seabreeze—Chambers County

Sun Oil Co. No. 4 Acom, sec. 103. R.U.

Sun Oil Co. No. 1-C White, T. Wells Sur. T.D. 8,872 ft.; making D.S.T. 8,850-55 ft.

Greens Lake—Galveston County

Sun Oil Co. No. 2 Houston Farm Dev. Co., D. Buckley Sur. Drlg. sh. 2,116 ft.

Hitchcock—Galveston County

N. W. Hunter No. 1 Aarco Oil Co., J Spillman Sur. T.D. 5,176 ft.; 5½-in csg. 5,175 ft.; tstg.

Bammel—Harris County

H. M. Harrell et al No. 1 Polley, C. G McLean Sur. T.D. 6,286 ft.; perf. csg 6,257-61 ft.; flwg. 6 B.F.P.H.; ¼-in. ck., 21% S.W.

Clear Lake—Harris County

West Prod. Co. No. 1 Dobie fee, W. M. Dobie Sur. Est. T.D. 5,810 ft.; comp.; no ga.

Clinton—Harris County

Stanolind O. & G. Co. No. 2 Edwards, Reels & Trobough Sur. Drk.

Stanolind O. & G. Co. No. 1 Paul Weaver, Reels & Trobough Sur. T.D. 3,860 ft.; tstg.

Eureka—Harris County

Jack Frazier No. 3 Varner Realty Co., J. Reinerman Sur. T.D. 7,762 ft.; 5½-in. csg. 7,762 ft.; perf. csg. 7,725-40 ft.; tstd. S.W.; perf. csg. 7,225-35 ft.; tstg.

J. Frazier No. 3 Vollmer-Neiman, J. Reinerman Sur. R.U.

Houston Oil Co. No. 1-D Laura Lackner, H. Reinerman Sur. R.U.

Means and McGee No. 1-A Laura Lackner, H. Reinerman Sur. T.D. 7,727 ft.; 5½-in. csg. 7,725 ft.

Tide Water Associated Oil Co. No. 1 Laura Lackner, J. Reinerman Sur. T.D. 7,667 ft.; D.S. stk.; P.B. 7,532 ft.; to sdtrk.

Fairbanks—Harris County

Amerada-Stanolind O. & G. Co. No. 2 F. Bullmore, G. Ayers Sur. 9⅝-in. csg. 1,235 ft.; W.O.C.

Amerada-Stanolind O. & G. Co. No. 1 P. E. Cougat, Geo. Ayers Sur. 9⅝-in. csg. 1,218 ft.

Amerada-Stanolind O. & G. Co. No. 1 M. Korasz, G. Williams Sur. Loc.

Amerada-Stanolind O. & G. Co. No. 1 J. F. Sebek, G. Williams Sur. Drlg. sh. 6,212 ft.

Carroll Oil Co. No. 1 Ralph Johnston, J. N. Dement Sur. T.D. 6,864 ft.; perf. csg. 6,839-43 ft.; would not flow; S.D.

Gem Oil Co. No. 3 B. W. Reid, G. Ayers Sur. Drlg. sh. 5,537 ft.

Showers & Moncrief No. 1 H. Ley, J. Waugh Sur. T.D. 6,847 ft.; run csg.

E. L. Smith-Ownby Drlg. Co. No. 2 Gibson, G. Ayers Sur. Drlg. sh. 5,329 ft.

Union Prod. Co. No. 1 Goodykoontz, W. S. Powell Sur. T.D. 7,590 ft.; 5¾-in. csg. 7,506 ft.; tstg.

Williams & Thompson No. 1 Ceperlo, G. Williams Sur. R.U.

Windsor Oil Co. No. 2 H. E. Ley, J. Waugh Sur. Drlg. sh. 5,420 ft.

Windsor Oil Co. No. 3 H. E. Ley, J. Waugh Sur. R.U.

Windsor Oil Co. No. 1 O. F. Parker, J. Waugh Sur. Drlg. sh. 4,630 ft.

Friendswood—Harris County

Humble O. & R. Co. No. 3 Cottingham, T. Choate Sur. T.D. 6,045 ft.; 5½-in. csg. 5,968 ft.

Humble O. & R. Co. No. 3 Herman Hospital, T. Choate Sur. Drk.

Humble O. & R. Co. No. 1 Houston Dev. Co., D. Putnam Sur. Drlg. sh. 7,730 ft.

Humble O. & R. Co. No. 1 J. L. Jones, Perry & Austin Sur. Drk.

Humble O. & R. Co. No. 14 L. S. Beamer, T. Choate Sur. Drk.

Humble O. & R. Co. No. 1 J. D. Owens, T. Choate Sur. T.D. 6,049 ft.; run 5½-in. csg.

Humble O. & R. Co. No. 1x 2-A Port City Ice Co., T. Choate Sur. 9⅝-in. csg. 1,042 ft.

Humble O. & R. Co. No. 1 E. E. Watson. Drk.

Cordele—Jackson County

Magnolia Pet. Co. No. 1 S. E. Drushel, Sur. No. 18. Drk.

H. J. Porter No. 1 Woussi, Peter White Sur. Loc.

Clam Lake—Jefferson County

Shell Pet. Corp. No. 2 McFaddin, S. A. Pace Sur. Cd. oil sd. 5,553 ft.; T.D. 8,198 ft., salt; top salt 8,156 ft.; 5-in. csg. 5,659 ft.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 5 J. H. Phelan, A. Stivers Sur. Bldg. drk.

Hardin—Liberty County

Amerada Pet. Corp. No. 1 J. H. Cessna, H. B. Johnston Sur. Drlg. sh. 7,020 ft.

Amerada Pet. Corp. No. 1 Lynott and Buffman, J. Robeson Sur. Drlg. sh. 2,030 ft.

Ark. Fuel Oil Co. No. 2 W. J. Green, A. B. Hardin Sur. 10¾-in. csg. 1,918 ft. drlg. sh. 6,015 ft.

Atlantic Ref. Co. No. 2 J. F. Richardson, A. B. Hardin Sur. R.U.

Geo. Echols-Shell Pet. Corp. No. 1 J. H. Cessna, H. B. Johnston Sur. Drlg. sh. 3,430 ft.

Gulf Oil Corp. No. 3-A J. C. Barfield, H. B. Johnston Sur. T.D. 7,661 ft.; 5-in. csg. on bttm.; reperf. csg. 7,640-42 ft.; swbd. oil and S.W.; killed to recomp.

Gulf Oil Corp. No. 3 J. H. Cessna, H. B. Johnston Sur. Drlg. sh. 6,438 ft.
Humble O. & R. Co. No. 1 M. H. Johnson, H. B. Johnston Sur. Loc.
Glen McCarthy No. 1 Oliver, H. B. Johnston Sur. T.D. 7,988 ft.; 7-in. csg. 7,836 ft.
Smith and McDannald No. 1 J. R. Rives, A. B. Hardin Sur. Drlg. sh. 7,010 ft.
Woodley Pet. Co. No. 1 Chambers, H. B. Johnston Sur. Drlg. sh. 6,283 ft.
Woodley Pet. Co. No. 1 Susan Wright, A. B. Hardin Sur. Drlg. sh. 4,718 ft.

Bay City—Matagorda County

Atlantic Ref. Co. No. 1 Gola, E. Hall Sur. Drlg. sh. 7,346 ft.
Hamman Expl. Co. No. 1 C. W. Badouh, E. Hall Sur. Loc.
Hamman Expl. Co. No. 1 S. A. Foote, E. Hall Sur. Drlg. 7,015 ft.

Palacios—Matagorda County

Bennett Prod. Co. No. 1 Foley Ld. Co., L. Goodwin Sur. Drlg. sh. 8,997 ft.
Sun Oil Co. No. 1 F. K. Robeson, L. Goodwin Sur. Drk.

Spurger—Tyler County

Republic Prod. Co. No. 10 Hurd, N. Hurd Sur. Drlg. sh. 7,705 ft.
Republic Prod. Co.-Houston Oil Co. No. 11 Hurd fee, N. Hurd Sur. Loc.

GULF COAST WILDCATS

Brazoria County

Texas Co. No. 1 M. W. Jones, H.T.&B. Sur. Drk.
Texas Co. No. 5 Freeport Sulphur Co., H. Burt Sur. Drlg. sd.&L. 2,525 ft.

Burleson County

Red Bank Oil Co. No. 1 Coffield, E. Sante Sur. T.D. 6,173 ft.; pmpd. 200 bbls. fluid in 18 hrs., 5 to 50% S.W.

Calhoun County

W. L. Goldston No. 2 L. M. Foester, E. W. Lemuel Sur. 10¾-in. csg. 900 ft.; T.D. 4,100 ft.; abd.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.

Fort Bend County

Strake Pet. Corp. No. 1 G. L. Dew, D Bright Sur. T.D. 6,410 ft.: P.B. and sdtrkd.; T.D. 6,350 ft.; trying to sidetrack 6,010 ft.
Strake Pet. Co. No. 2 Sugarland Industries, Wm. Stafford Sur. T.D. 5,500 ft.; P.B. to sdtrk.; cg. sh. 6,324 ft.
Sam E. Wilson No. 1 Mt. Wood. Chas. Heywood Sur., C Lot 93. Drlg. 690 ft.

Galveston County

Sun Oil Co. No. 1 Cade, A. Dickinson. 13⅜-in. csg. 2,218 ft.; T.D. 8,090 ft.: shot csg.; recvd. 3,400 ft.; P.B.; W.O.; may abd. or sdtrk.

Harris County

Commerce Oil Co. No. 1 Meaderbrook Dev. Co., J. R. Harris Sur. Loc.
J. Frazier No. 2 Houston Deepwater Ld. Co., Thos. Earle Sur. Drlg. sh. 3,510 ft.
O. W. Killam No. 1 M. A. Dodd, W.C. R.R. Sur., sec. 12. R.U.

Jasper County

John Mayo No. 1 Cartwright, Legrande Sur. Drlg. sh. 4,410 ft.

Jackson County

Magnolia Pet. Co. No. 1 West Ranch, Ramon Musquez Sur. T.D. 7,207 ft.: 7-in. csg. 5,680 ft.; perf. csg. 5,088-91 ft.; recvd. S.W.; 500 lbs. press.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.; may abd.

Liberty County

Sun Oil Co. No. 1 Caroline Jordan, L. Gedruf Sur. R.U.
Texas Co. No. 1 Paige, James Hanney Sur. R.U.

Matagorda County

Sun Oil Co. No. 1 Fred Robbins, C. H. Vandeveer Sur. T.D. 10,160 ft.; well tried to blow out; 7-in. csg. 10,150 ft. perf. csg. 9,970-10,030 ft.; flwg. by hds.; went dead; reperf. csg. 9,430-9,520 ft.; made sqz. job; reperf. csg.: 9,315-60 ft.; tstg.; swbd. dry; perf. csg. 8,420-50 ft.; rng. tbg.

Montgomery County

E. R. Kirkpatrick No. 1 Foster Lbr. Co., T.&N.O. Sur. No. 7. R.U.
J. Smith et al No. 1 J. V. Scott, F. A. B. Wheeler Sur. R.U.

Polk County

C. E. Gates No. 2 I. O. Jackson, J. W. Abbey Sur. Drk.

Waller County

David MacDaniel No. 1 O. M. Dinkins, L. Pearsall Sur. T.D. 6,500 ft.; abd.
Stanolind O. & G. Co. No. 1 Freeman H.T.&C. Sur. No. 99. Drlg. sh. 10,286 ft.

Wharton County

Humble O. & R. Co. No. 1 J. D. Hudgins, Elizabeth McKenzie Sur. Drlg. sh. 6,137 ft.
Albert Plummer No. 2 M. Sorrell, S. F. Austin Sur. Drlg. sh. 730 ft.

S. W. TEXAS WILDCATS

Atascosa County

Altgell Mason No. 1 Vanegar, Francisco De La Garza Sur. S.D. 2,780 ft.; cd. sat. serp. 2,738-80 ft.; rng. csg.

Bastrop County

R. C. Franklin No. 2 Yarrington, Jose Manuel Bangs Sur. Drlg. 1,115 ft.
Ogden & Riddle No. 1 Riddle, Henry Warnell Sur. Drlg. 20 ft.
Oscar Raez No. 1 Walters, Michael Grun Sur. Drlg. sh. 1,640 ft.; no report.
Paul Texas and Ashby No. 1 J. T. Grizzard, Andrew Graham Sur. Drk.
Walden Oil Co. No. 1 Graham, Andrew Mays Sur. No. 19. Drk.

Bee County

Dirks Bros. No. 1 Amberg, A.B.&M. Sur. R.U.

Bexar County

Fain-Harrison and Jenkins No. 1 Hansen, John Christopher Sur. 10-in. csg. 28 ft.
Nami Herman No. 1 W. F. Fields, A. Bustillos Sur. T.D. 737 ft.; 5⅛-in. csg. on bttm.; prep. to D.D.

Brooks County

Atlantic Ref. Co. No. 1 Mestena O. & G. Co., Las Mestenas Gr. Cg. sh. 3,916 ft.

Caldwell County

Banke Miller Oil Co. No. 1 Martindale, Hector McNeil Sur. T.D. 3,223 ft.; prep. to core.
Jan Oil Co. No. 1 Chew, J. McCoy Sur. T.D. 2,022 ft.; 5½-in. csg. 1,930 ft.; abd.
Mencill Pet. Co. No. 1 J. Wallinger, Gedeon Pace Sur. T.D. 1,872 ft.; abd.
C. R. Richardson No. 1 Schowe, T. Maxwell Sur., Abst. 188. T.D. 940 ft.; abd.
E. E. Whittington No. 1 Gilmer, H. C. Williams Sur. S.D. 1,704 ft.

Calhoun County

Hiawatha O. & G. Co. No. 2 J. J. Roemer, J. Ogsberry Sur. R.U.

Cameron County

Saxet Prod. Co. No. 1 Port Isabel Irrig. Co. Sur. 30. Drk.

De Witt County

Marjo Oil Co. No. 1 W. D. McCurdy, John Hunt Sur. Drlg. sh. 980 ft.

Duval County

James Foster No. 1 Foster, B.S.&F. Sur. No. 268. Drlg. 50 ft.
Humble O. & R. Co. No. 1 Harvey and Henderson Sur. 386. Drlg. sh. 1,732 ft.
W. C. McBride No. 1 Murphy, J. C. King Sur. No. 120. T.D. 2,976 ft.; abd.
Rowan & Hope No. 1 Cuellar, B.B.B.& C. Sur., sec. 96. 10¾-in. csg. 198 ft.; made 15-min. D.S.T. 5,100-36 ft.; tstd. 49 lbs. press.; 500 ft. oil and 120 ft. S.W.; T.D. 5,509 ft.; 7-in. csg. 5,493 ft.; perf. csg. 5,405-10 ft.; tstd. S.W.; 135 lbs. W.P.; perf. csg. 5,109-20 ft.; showing S.W.; sqzd. off all perfs.; perf. 5,109-17 ft.; flwd. 78 bbls. oil plus 10% S.W.; ⅝-in. ck. in 20 hrs.; grav. 43.4.
Standard Oil Co. of Texas No. 1 Dolores Garcia Sur. 16-in. csg. 1,015 ft.; cg. 3,449 ft.

Edwards County

Evans & Love No. 1 Steve Brown, Blk. 6, G.W.T.&P. Sur. S.D. 6,261 ft.

Frio County

F. L. Thompson No. 1 Davis, G.B.&C.N. G. Sur. No. 1. Cd. oil sd. 3,722-59 ft.; sat. chk. logged at 4,964-76 ft.; drlg. chk. 5,146 ft.

Goliad County

Bunte Prod. Co. No. 1 Crews, Maria Jesusa DeLeon Sur. Spd.

Gonzales County

Heard-Hall & Young No. 1 Clark, Robt. S. Armistead Sur. Spd. and S.D.

Guadalupe County

Benstrasser No. 1 Eickenroht, A. Marrs Ennaurrezar Sur. R.U.
J. E. Clark No. 2 Anderson, Green DeWitt Sur. No. 11. Drlg. 2,780 ft.

Hidalgo County

Ralph Fair No. 1 Lynn, Juan Jose Hinojosa Sur. Drlg. sh. 4,050 ft.
Hidalgo Prod. Co. No. 1 Daskam Corp., Porc. 45, Blk. 34. T.D. 3,296 ft.; D.S. stk.; pulled drk. in; S.D.

Jim Hogg County

Humble O. & R. Co. No. 1 Anna Kelsy Bass, San Rafel Gr. 10¾-in. csg. 1,207 ft.; drlg. sh. 6,794 ft.; S.G.

Jim Wells County

E. Calloway et al No. 1 E. O. Cook, Lavaca Grant Sur. S.D. 4,120 ft.
Humble O. & R. Co. No. 1 Tarrant, J. Poitevent Sur. T.D. 6,520 ft.; D.S. stk.
Magnolia Pet. Co. No. 1 Valades Hrs., La Anima Sola Gr. T.D. 6,390 ft.; W.O.O.
Mills Bennett Prod. Co. No. 1 W. R. Perkins, Lavaca Gr. Drlg. 4,630 ft.
Rehmet & Wolcott No. 1 Balzon, I.&G. N. R.R. Sur., sec. 142, C Lot 27. 10¾-in. csg. 499 ft.
Southern Minerals Oil Corp. No. 1 J. R. Trussells, Lavaca Gr. 10¾-in. csg. 540 ft.; S.D. 4,000 ft.

Kendall County

Geo. Dorsey No. 1 Flanagan, J. Sweeney Sur. No. 12. S.D. 100 ft.

Kerr County

Edminston No. 1 Saul, Sur. 47. S.D. 55 ft.
H. C. Starkey No. 1-A Saue, T.W.N.G. R.R. Sur. S.D. 190 ft.

Kimble County

C. A. Dawson et al No. 1 Wilkinson, Brook and Burleson Part., B.S.&F. Sur. No. 23. S.D. 375 ft.; (corrected).

Kleberg County

Pure Oil Co. et al No. 1 State Ld., Tr. 68, Laguna Madre Bay, Lse. No. 528. 18⅝-in. csg. 198 ft.; drlg. sh. 6,120 ft.

La Salle County

Finley S. Ewing No. 1 Pugh, E. L. Garrett Sur. S.D. 780 ft.
Eugene Garner No. 1 Yeager, Lot 6. Wallace Subd. of Sur. No. 39. S.D. 1,590 ft.

Lee County

Eleoussa Oil Co. No. 1 Sanders, J. Vin Roeder Sur. T.D. 4,398 ft.; prep. to resume drlg.

Live Oak County

J. K. Adair No. 1 Schultz Live Stock Co., Wm. J. Pierce Sur. 10¾-in. csg. 20 ft.; drlg. 420 ft.
J. B. Chew No. 1 Cartwright, J. Poitevent Sur. No. 1. Drlg. sh. 5,672 ft.
Fant City Oil Co. No. 1 Alamo Lbr. Co., Rafel Alcantora Sur. No. 26. T.D. 1,605 ft.; abd.
R. H. Feltner No. 1 Reed, I.&G.N. R.R. Sur. 15. R.U.
Holland Oil Co. No. 1 West Est., C. Q. Ragland Sur. 10¾-in. csg. 189 ft.; S.D. 202 ft.; abd.
McSpaddin & Tombs No. 1 Jones, John Ely Sur. Drlg. sh. 3,127 ft.
V. G. Schimmel et al No. 1 Geo. West, G. L. Haas Sur. T.D. 210 ft.
Stewart Oil Co. No. 1 Nations, C Lots 792-793. T.D. 1,969 ft.; abd.

McMullen County

N. V. Duncan No. 1 Nueces Ld. & Livestock Co., B.S.&F. Sur. No. 119. T.D. 1,505 ft.; abd.
Heard-Hall and Young No. 1-A Byrne, Geo. Pittuck Sur. No. 7. Loc.
S. M. Nesser No. 1 Franklin. J. Poitevent Sur. No. 33. Attempted D.S.T. 1,840-54 ft.; test failed.
G. G. Newton No. 1 Bryne, Geo. Pettuck Sur. S.D. 977 ft.
Red Bank Oil Co. No. 1 Nueces Ld. & Livestock, J. McGrain Sur. R.U.
C. C. Shumway No. 13 Shiner, sec. 52, Shiner Ranch Subd. T.D. 1,800 ft.; may abd.
Wine Brenner No. 2 Teal, Wm. Kuykendall Sur. No. 41. T.D. 675 ft.; abd.

Medina County

F. A. Brown No. 1 Senne, A.C.H.&B. Sur. 105. Logged 8 ft. of sat. oil sd. 802-11 ft.; (corrected); T.D. 903 ft.; 6⅝-in. csg. 805 ft.
J. W. Cromwell No. 1 J. W. Tondre, I. J. Rogers Sur. Cg. 1,002 ft.
D. K. J. Oil Co. No. 1 Burrell. T.D. 2,039 ft.; S.D. after swbg. dry.
Gee Hayes et al No. 1 Conrad, J. Keppler Sur. S.D. 575 ft.
Geo. Hayes and Tarver No. 1 Mann, J. H. Isbell Sur. No. 10. Drlg. 110 ft.
Schweirs et al No. 1 Schmidt, J. Brieden Sur. No. 273. T.D. 940 ft.; abd.
R. Q. Stivers No. 1 Jungman, N. B. Rogers Sur. No. 33. S.D. 775 ft.
Taylor & Pepper No. 1 Saathoff, Peter Eichorn Sur. Drlg. 600 ft.
M. L. Walker No. 1 Zuberbulen, A. Bonamy Sur. R.U.; S.D.
Ziegler et al No. 1 Wiemers, F. Thurmm Sur. Loc.

Milam County

Clark & Morgan No. 1 Johnson, Juan Jose Acosta Sur. T.D. 1,917 ft.; U.R.
Texedo Oil Co. No. 1 Graham, Charles Cornea Sur. Logged S.O. 1,135-36 ft.; T.D. 1,808 ft.; fgg. for tbg.
Texedo Oil Co. No. 1 Paul Garves, C. Robertson Sur. S.D. 1,170 ft.: C.O.: set 7-in. csg. 1,167 ft.; drlg. sh.&clk. 1,515 ft.; no report.
Western Gulf Pet. Co. No. 1 Batte, Jose Teal Sur. R.U.

Nueces County

Coast Line Oil Co. No. 1 State (Redfish Bay), State Tr. No. 32. Logged 7,335-56 ft.; T.D. 8,660 ft.; 7-in. csg. 8,637 ft.; perf. csg. 8,555-76 ft.; flwd. S.W. under 250 lbs. press.; tstd. S.W. below 8,500 ft.; sqzd. off perf.; W.O.C.

Refugio County

I. J. Allen No. 2 Rooke, Jose Miguel Addrite and Jose Maria Aldrite 6¼ Lge. Drlg. sh. 4,039 ft.

San Patricio County

Atlantic Ref. Co. No. 1 Jones, sec. 72, G. H. Paul Subd. of Coleman-Fulton Pasture Lds. T.D. 6,010 ft.; perf. csg. 5,297-99 ft.; tstd. S.W.; S.S.O.; abd.
Humble O. & R. Co. No. 1 T. J. Carmody, sec. 22, Third Addn. of Taft farm lds. Cg. sdy. sh. 5,581 ft.

Starr County

O. C. Borah No. 1 P. G. Garcia, Juan Salinas Sur. S.D. 563 ft.
O. C. Borah No. 1 Martinez, Joaquin Salinas Sur. S.D. 370 ft.
O. C. Borah No. 2 Martinez, J. Salinas Sur. T.D. 505 ft.; bailing.
Republic Nat. Gas Co. No. 1 De Mendoza, Sur. 302. T.D. 1,368 ft.; abd.
Sun Oil Co. No. 1 Smith, A. J. Smith Sur. Loc.
Sun Oil Co. No. 1 Young, J. Sisneros Sur. No. 79. T.D. 3,008 ft.; 5½-in. csg. 2,765 ft.; perf. 2,710-20 ft.; comp. for dry gas well.
Wheelock & Collins No. 1-A Guerra, Santa Cruz Gr. T.D. 6,590 ft.; rng. csg.
W. W. Zimmerman et al No. 1 Starr Co. Cattle Co., Juan De La Garza, Porc. 89. R.U.

Travis County

John R. Sterrett No. 1 Washington, Jose Antonio Navarro Sur. Cg. 1,294 ft.; no report.
R. F. C. Oil Co. No. 1 Jones, Reuben Hornsby Sur. No. 17. S.D. 825 ft.
Texas Empire Trading Co. No. 1 E. E. Jourdan, Santigo De Valle Gr. 5½-in. csg. 611 ft.; S.D. 711 ft.

Victoria County

Superior Oil Co. No. 1 A. R. Robertson, C Lot 10, Blk. R, Allison Richey Subd. R.U.

Webb County

R. S. Boling No. 1 Frost Natl. Bnk., E. L.&R.R. Sur. 596. T.D. 537 ft.; abd.
Garrison & Paris No. 1 Benavides, Hale Subd. of M. Arispe Gr., C Blk. 107. R.U.
O. W. Killam No. 1 Cuellar, Josefa Cuella Sur. Drlg. sh. 3,150 ft.
E. J. Sawyer No. 1 Garcia-Villareal, J. M. Garcia Sur. Cd. oil sd. 2,465-87 ft.; S.D. 2,511 ft.

Williamson County

Fritz Fuchs No. 2 Bachmeyer, Hamilton White Sur. No. 3. T.D. 1,365 ft.; abd.
Marion Aldridge No. 1 Kroschewsky. 7-in. csg. 969 ft.; T.D. 1,084 ft. (corrected); acdzd.; S.D.

Wilson County

Lincoln Pet. Co. No. 1 Blake hrs. of Simon and Juan Dearocha Sur. Drlg. sh. 750 ft.
Stapper Oil Co. No. 1 J. McDaniel, L. Manchoca Sur. Drlg. sh. 2,070 ft.

Zapata County

Thompson & Lowe No. 1 Ramirez, Blk. 6, Doyle Subd. of Porc. 18. Drlg. 50 ft.

EAST TEXAS

(Border counties)

Rodessa—Cass County

Red Iron Drlg. Co. No. 1 Echols, Myers Sur. Drlg. sh. 4,916 ft.

Bowie County

King Oil Corp. No. 1 Watts, Geo. Brinlee Sur. T.D. 4,574 ft.; prep. deepen.

Marion County—Rodessa

Ark-La. Gas Co. No. 1 Belcher, Coy Sur. Drlg. sh.&L. 4,950 ft.
Ark.-La. Gas Co. No. 1 Johnson, Alex. Johnson Sur. R.U.
T. Bell et al No. 1 Moseley, D. Lane Sur. T.D. 2,768 ft.; S.D.
Gulf Oil Corp. No. 1 Blake, Jackson Sur. Drlg. sh. 300 ft.
Harvey, Henderson & Clardy No. 5-B Henderson, Ewing Sur. Drlg. sh.&L. 5,304 ft.
Holcomb & Thomason No. 1 Bohn, Coy Sur. Drlg. 3,408 ft.
Holcomb & Thomason No. 1 Bramlett, 245 ft. S line, 20-ac. lse., 400 ft. E line, Gentry Sur. Set 5¾-in. csg. 6,064 ft.; circulated with oil and swbg. to test; T.D. 6,082 ft.
Hollandsworth Drlg. Co. No. 1 Hill, 15-ac. tr., Smith Sur. R.U.
Hollandsworth Drlg. Co. No. 1 Hurst, Hanks Sur. Set 5½-in. csg. 6,017 ft.; T.D. 6,028 ft.; comp.; 25 B.P.H.; ½-in. ck.
Sam Killingsworth No. 1 McReynolds, 5-ac. lse., Coy Sur. Cg. 6,026 ft.
Ohio Oil Co. No. 3 Moseley, Francis Sur. Drlg. sh.&L. 5,725 ft.
Phillips Pet. Co. No. 2 Denton, Coy Sur. Drlg. L.&sh. 4,121 ft.
Phillips Pet. Co. No. 1 Jackson, Hanks Sur. Drlg. L.&sh. 4,862 ft.
Shell Pet. Corp. No. 1-C Henderson, Bennington Sur. Set 5-in. csg. 5,977 ft.; T.D. 6,002 ft.
Shell Pet. Corp. No. 4 Schluter, Smith Sur. Drlg. sh. 2,574 ft.
Union Prod. Co. No. 9 Hutchinson, Coy Sur. Drlg. ch. rk. 2,397 ft.

Panola County

Texas Co. No. 1 Claude Adams, T. Cox Sur. Top lower Marine 7,792 ft.; drlg. hd. sd. 8,317 ft.

Sabine County

Pet. Heat & Power Co. No. 1 Jasper State Bank, McDonald Sur. T.D. 2,506 ft., sd.; S.D.W.O.

Shelby County

Center Oil Co. No. 1 Windham, A. H. English Sur. T.D. 3,422 ft.; set 6⅝-in. csg. tstg.
Mallard & Locke No. 1 W. E. Roller Est., Sullins Sur. Drlg. sh.&L. 4,310 ft.
Porter Oil Co. No. 1 Pickering Lbr. Co., C. E. Henry Sur. T.D. 5,065 ft.; S.I.
W. A. Reddit No. 2 Pickering Lbr. Co., P. J. Loggins Sur. Drlg. 3,538 ft.

WEST TEXAS WILDCATS

Andrews County

Atlantic Ref. Co. No. 1 Texas Univ., sec. 26, Blk. 11, University Lands. D.&A. at 4,606 ft.
H. S. Forgerson No. 1 Lockhart-Brown. Swbg. 4,584 ft.
Perkins, Wright & McMillan No. 1 Cowden. Prep. drill plug 8,012 ft.
Rhodes & Tompkins No. 1 Emma Cowd-

en, sec. 1, Blk. 44, T.&P. Sur. S.D. 4,200 ft.

Scilley County

Duffey & Etz No. 1 Enochs, Tract 66, League 182, Floyd Co. School Lands Sur. D.&A. 4,334 ft.

Cochran County

Devonian-Honolulu-Cascade No. 1-C-8 Duggan, sec. 8, Oldham C.S.L. Sur. R.U.S.T.; 7-in. set at 4,958 ft.
Texas Co. No. 1 Mallett Ld. & Cattle Co., sec. 7, Blk. G, P.S.L. Sur. P.B. 5,058 ft.; erecting storage 5,051 ft.

Coke County

H. E. Ogden No. 1 Rawlins, sec. 390, Blk. 1-A. D.&A. 3,504 ft.
Barnett Pet. Co. No. 1 J. R. Mims, sec. 39, Blk. W, T.&P. Sur. S.D. 1,861 ft.

Crane County

Texas Co. No. 1-G Univ., sec. 7, Blk. 30, Univ. Sur. Loc.
T. B. Cranfill, Trustee, No. 1 J. B. Tubbs, Blk. 32, sec. 20, P.S.L. Sur. R.U.R.
Gulf Oil Corp. No. 4 McKnight, sec 3, Blk. B-21, P.S.L. Sur. Drlg. 4,375 ft.

Crockett County

R. H. Henderson No. 1 University, Univ. Sur., Blk. 14, sec. 18. Drlg. 605 ft.
Short & Gillette No. 1 J. W. Owens, Jose Zunegas Sur. Drlg. 1,785 ft.

Culberson County

Harry J. W. Nichaus No. 1 C. M. Caldwell, sec. 15, Blk. 109, P.S.L. Sur. S.D.O. 2,500 ft.
Harry J. W. Niehaus No. 1 fee, Blk. 109, sec. 13, P.S.L. Sur. 1,800-ft. test; M.I.M.
S. J. Isaacs No. 1 L. G. Sheddan, sec. 25, Blk. 52, P.S.L. Sur. Spd. and S.D.
Quito Oil Co. No. 1 Cameron Lbr. Co., sec. 24, Blk. 81, P.S.L. Sur. Drlg. 616 ft.

Dickens County

Bond D. Jones No. 1 Ford et al, I.&G.N. Sur. Loc.
J. F. Marrisey No. 1 I. J. McMahan, sec. 319, Blk. 1, H.&G.N. Sur. S.D. 1,050 ft.

Ector County

Sinclair Prairie No. 3-A Johnson, sec. 37, Blk. 43, T.&P. Sur. Loc.
Sinclair Prairie No. 2-B P. Moss, sec. 40, Blk. 44, T.&P. Sur. Loc.
Stogner et al No. 1 Hendrick, sec. 4, Blk. 43, T.&P. Sur. Drlg. 4,109 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. S.D. 3,571 ft.

Fisher County

S. & D. Daube and Forest Dev. Co. No. 1 A. C. Bennett, sec. 51, Blk. 2, H.& T.C. Sur. W.O.C.; squeeze job 3,694 ft.

Floyd County

Mills Bennett No. 1 T. Montgomery, F. J. Latham Sur., 6 mi. S of Floydada. Drlg. 5,180 ft.

Gaines County

Eastland Oil Co. No. 1 R. C. Dunbar, sec 24, Blk. A-12, P.S.L. Sur. Prep. acid. 4,640 ft.
J. T. Perryman, Jr., No. 1 C. H. Doak, D.&W. Sur., Blk. H, sec. 43. Drlg. 3,640 ft.
Riddle & Warr No. 1 J. B. Brown et al, sec. 26, Blk. G, C.&M.R.R. Sur. Drlg. 2,320 ft.

Garza County

Gulf Oil Corp. No. 1 Swanson, sec. 25, Blk. 2, H.&G.N. Sur. Drlg. 5,917 ft.

Glasscock County

O. B. Greathouse No. 1 Burns, sec. 221, Blk. 29, W.&N.W. Sur. S.D. 180 ft.

Hockley County

Gulf Oil Corp. No. 1 Mallett Ld. & Cattle Co., sec. 6, Blk. X, P.S.L. Sur. P.B. 5,036 ft.; pump 28 B.O.P.D.; tstg. 5,036 ft.
Skelly Oil Co. No. 1 Elwood Est., Howard C.S.L. Sur., Lge. 15. Drlg. 3,150 ft.

Howard County

Lockhart Pet. Corp. No. 2 Robert Scott, W.&N.W. Sur., Blk. 29, sec. 86. Drlg. 3,130 ft.
W. B. Powell, Trustee, No. 1 Guitar Trust, Blk. A, sec. 17, Bauer & Cockrell Sur. R.U.S.T.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp. 6. Rng. csg.; T.D. 4,501 ft.
Haymon Krupp No. 1 Briggs, sec. 24, Blk. 73, Twp. 7, T.&P. Sur. Tstg. for gas 4,159 ft.; swbg.; T.D. 4,225 ft.

Jeff Davis County

Joiner Oil Corp. No. 1 Jones-Coffield S.D. 3,702 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co., sec. 151, H.E.&W.T. Sur. S.D.O. 4,450 ft.

Martin County

W. D. Anderson No. 1 J. R. Vance, sec. 9, Blk. 36, T.&P. Sur. Drlg. 2,515 ft.

Menard County

C. D. Haggerty No. 1 Callon, sec. 36, Jim Franz Sur. S.D.R. 975 ft.
Hartzell-Nawn & O'Hara No. 1 Wilhelm, sec. 24, Blk. A-1735, Indianola R.R. Sur. S.D.O. 655 ft.

Pecos County

Cox & Moore No. 1 White & Baker, sec. 46, Blk. Z, T.C.R.R. Sur. S.D. 8-in. 430 ft.
Ed Falney No. 1 Trees, sec. 63, Blk. 8, H.&G.N. Sur. Rebldg. drk.; S.D. 2,055 ft.
J. N. Gregory et al No. 1 Humble-O'Niell, H.&G.N. Sur., Blk. 10, sec. 74. Loc.
J. D. Kugle, Jr., No. 1 W. C. Jackson, sec. 120, Blk. 8, H.&G.N. Sur. Comp. 20 B.O.P.D.
Magnolia Pet. Co. No. 1 McKee. P.B. 6,197 ft.; W.O.C.
E R.. Minshall et al No. 1 Haynie, sec. 28, Blk. 146, T.&St.L. Sur. Drlg. by bit 2,025 ft.
S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. Drlg. by tools 7,190 ft.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk. 12, G.H.&S.A. Sur. S.D.O. 5,427 ft.

Reeves County

Ohio Oil Co. No. 1 Papham, sec. 18, Blk. 54, T.&P. Sur. C.O. 2,030 ft.

Scurry County

Coffield & Guthrie No. 1 E. E. Spears et al, sec. 130, Blk. 97, H.&T.C. Sur. S.D. line 1,876 ft.
Gursham-Hunter No. 1 C. M. Wellborn, sec. 142, Blk. 25, H.&T.C. Sur. Loc.
Robinson Drlg. Co. No. 1 Martin, sec 147, H.&T.C. Sur. P.B. 2,500 ft.; S.D.O.

Sterling County

Loffland & Moore Bros. No. 1-A J. S. Cole, W.&N.W. Sur., Blk. 30, sec. 1. Abd. 1,994 ft.
J. W. Sward No. 1 Brennand, sec. 107, Blk. 2, H.&T.C. Sur. Drlg. 2,025 ft.
W.F.W. Oil Co. et al No. 1 R. W. Foster, sec. 9, Blk. 13, S.P.R.R. Sur. Drlg. 1,172 ft.

Stonewall County

Bert Fields No. 1 J. M. Lee, J. E. Pierson Sur. Drlg. 2,825 ft.
General Crude Oil Co. No. 1 J. D. Smith, sec. 371, Blk. 2, H.&T.C. Sur., 12 mi. N Rotan. Drlg. 4,561 ft.
Percy Jones et al No. 1 fee, Austin & Williams Sur. 348, sec. 2. Drlg. 1,486 ft.
Swanson & Parriott No. 1 H. T. Carlisle, sec. 293, Blk. D, H.&T.C. Sur. Drlg. 4,700 ft.

Terrell County

Schermerhorn Oil No. 1 H. P. Allison, sec. 22, Blk. B-2, C.C.S.D. & R.G.N.G. Sur. 2,500-ft. test. Loc.

Terry County

L. E. Hults No. 1 P. J. Ross, sec. 6, Blk. D-14, C.&M.R.R. Sur. D.&A. 5,181 ft.

Tom Green County

Spinner No. 1 Reed, Mason Ferry Ranch. Sur. S.D. 4,495 ft.
J. B. Watson No. 1 Llano, C.S.L. Sur., sec. 16, 500-ft. test. Loc.

Upton County

W. D. Riser et al No. 1 King Ranch Oil & Lignite Co., sec. 8, Blk. 3, M.K.&T. Sur. S.D. 730 ft.

Ward County

M. J. Delaney No. 1 J. E. Cooper, H.&T.C. Sur. Tstg. 2,092 ft. (last report).
J. E. Fitzpatrick et al No. 1 F. K. Dyer, sec. 135, Blk. 34, H.&T.C. Sur. S.D.O 5,085 ft.
Hoss & Downey No. 1 Ross Avery, sec. 36, Blk. 1, H.&T.C. Sur. S.D. 2,000 ft.
John Poindexter No. 1 V. Meyers, sec. 17, Blk. 32, H.&T.C. Sur. Drk.
S J. Rixford No. 1 W. B. Crump, sec. 2, Blk. 34, H.&T.C. Sur. Drlg. 1,900 ft.
O. E. Schkode No. 1 Boogher, sec. 1, Blk. 32, H.&T.C. Sur. S.D. 2,108 ft.; S.I. storage full 2,078 ft.; C.O. 2,105 ft.

Winkler County

Magnolia Pet. Co. No. 13 State-Walton sec. 14, Blk. B-3, P.S.L. Sur. S.I. 3,231 ft.

Yoakum County

Helmerich & Payne No. 1 S. O'Dowd, sec 896, Blk. D, J. H. Gibson Sur. Rerng tbg. 5,035 ft.

E. C. TEXAS WILDCATS

Anderson County

J. G. Mayo et al No. 1 Royall & Davey, L. McClowd Sur., 12 mi. E of Palestine. Drk.

Angelina County

Ginter Bros. No. 4 Copes Heirs, J. Morin Sur., 3 mi. S of Dibol. Abd. loc.
K. L. McHenery No. 1 L. Henderson, Wm White Sur., 1 mi. E of Hamlet. Drlg. 600 ft.

Camp County

W. C. McGlothlin No. 1 Joe Venters, S. Wright Sur., 3 mi. SE of Leesburgh. S.D.W.O. 5,710 ft.

Cherokee County

J. G. Mayo No. 1 Travis, T. Quevada Sur 2 mi. SE of Mt. Selmon. Drlg. 3,411 ft.

Dallas County

Plaza Oil Co. No. 1 Davidson Marchants Sur., 1 mi. NW of Seagoville. S.D. 3,528 ft.

Delta County

O. W. Killam No. 1 Delta Farms, J. Dollahite Sur., 4½ mi. NE Sulphur Bluff. O.T.D. 2,920 ft.; drlg. 3,362 ft.

Falls County

M. H. Hayes No. 1 A. Garrett, J. M. Sanches Sur., 2 mi. NE of Lott field. S.D. 1,072 ft.

Grayson County

Epenhauser No. 1 J. M. Rogers, L. Kelly Sur., 1½ mi. NE of Whitesboro. Drk.

Gregg County

Humble O. & R. Co. & Gulf Oil Corp. No. 1 E. Robertson, M. Mann Sur., 2½ mi. SW of Longview Trinity test. Elev. 272 ft.; tstg. 2,000,000 ft. gas; installing separator at 8,131 ft., P.B. depth.

Henderson County

Hi-Point Oil Co. No. 1 Dan Smith, 2½ mi. SE of Flag Lake, F. Brown Sur. Drlg. 2,450 ft.
Richards & Holloway No. 1 J. P. and T. Tarkington, W. Kenewell Sur., SE of Flag Lake. Comp., 172 B.O.P.D.

Houston County

Humble O. & R. Co. No. 1 Daily & Taylor, J. G. Thompson Sur. Tstg. 5,896 ft.
Humble Oil & Ref. Co. No. 1 C. C. Hill, J. L. LaReviere Sur., Navarro Crossing field. Loc.
Sun Oil Co. No. 1 R. S. and H. H. Daily, J. G. Thompson Sur., 3 mi. SE of Navarro Crossing. Tstg. 5,893 ft.

Lamar County

Dahl & Barr No. 1 Lewis & McQuiston, R. Russell Sur., 1 mi. NE of Paris. S.D.W.O. 1,253 ft.

Leon County

Lone Star Gasoline No. 2 G. W. Lee, R. Hunter Sur., 5 mi. SE of Buffalo gas area. R.U.

McLennan County

Lisle Steele No. 1 C. H. Cherry, M. Martinez Sur., 4½ mi. SE of Waco. Drlg. 804 ft.
Russell & Thompson No. 1 L. L. Phillips, C. O. Campo Sur., 4 mi. S of Waco. S.D.W.O. 1,070 ft.

Madison County

C. K. Handy No. 1 D. G. Cannon, D. Arriola Sur., 6 mi. NW of Madisonville. S.D. 649 ft.

Navarro County

R. G. Dickson No. 1 A. M. Swink, W. Hudson Sur., 3 mi. S of Richland. Drlg. 300 ft.
B. T. Fearis No. 1 W. Montgomery, I. Redding Sur., 7 mi. S of Kerns. Loc.
J. O. Grittiths No. 1 Haynes, Able Parsons Sur. 4 mi NE of Kerens. Crooked hole; skidded drk.; set surface pipe.
Mrs. Jane Robinson No. 1 Fortson Bros., Eli Smith Sur., 5 mi. NE Corsicana. S.D. 2,765 ft.
Topez Oil No. 1 M. Mizell, T. J. Chambers Sur., 14 mi. NE of Corsicana. Loc.

Red River County

Daniels et al No. 1 J. J. Gaston, J. Guest Sur., 2 mi. S of Detroit. S.D. 21 ft.
Texas Trading Co. No. 2 So. Pine Lbr. Co., D. D. Bruton Sur., 12 mi. N of Clarksville. D.&A. 2,155 ft.
Walters et al No. 1 Phamplin, W. Moore Sur., 3 mi. SE of Kanawha in NW part of county. S.D. 220 ft.
C. E. Whitehead No. 1 R. H. Ringwald, A. Moore Sur., 1 mi. NW of Manchester. S.D. 50 ft.

Rusk County

J. W. Merrick et al No. 1 Peter Tipps, T. Uzzell Sur., 6 mi. S of East Texas field and 5 mi. N of New Salem. Deepening from 3,888 ft.; S.D.W.O. 3,983 ft.

Smith County

Combest et al No. 1 Dora Kendall; J. Williams Sur., 1¼ mi. SW of Jamestown. O.T.D. 2,798 ft.; R.U. to deepen.
H. L. Hunt et al No. 1 S. H. Bradly, T. P. Payne Sur., 10 mi. E of Tyler at Chappel Hill. Tstg. 7,528 ft.

Trinity County

Gassage et al No. 1 Mrs. C. H. Elliot, Joel Clapp Sur., 6¼ mi. N of Trinity. Drk.

Upshur County

E. J. Dupree No. 1 W. A. Lawrence, R. Polly Sur., 4 mi. S of Gilmer. S.D.W.O. 4,308 ft.

NORTH TEXAS WILDCATS

Archer County

Adams O. & G. Co. No. 1 C. Moer, sec. 21, C.&P. Sur., Blk. 3. S.S.O. 4,135-65 ft.; tstg.
Fain-McGaha No. 1 McCrory G, sec. 44, A.T.N.C.L. Sur. R.U.R.
Gray & Thweatt No. 1 Ferguson, sec 2, S.P.R.R. Co. Sur. No. A-968. 6⅝-in. 4,050 ft.; W.O.C.
Helmerich & Payne et al No. 2 L. F. Wilson, Blk. 25, A.T.N.C.L. Sur. Testing at 5,105-16 ft.
Hines & Hancock No. 1 W. R. Hammond, H. Corzine Sur. A-56. S.S.O. 3,647-48 ft.; T.D. 3,753 ft.; S.D.O.
Frank King No. 1 Anita Koenig et al, S.F. Moseley Sur. No. A-297. Loc.
Louis Sikes et al No. 1 Ford, T. M. Cecil Sur. A-982. 4,500-ft. test; Tstd. S.W.; S.D.O.
Thos. A. Jirik No. 1 Kunkel, sec. 2, P.R.R. Sur. A-1186. 10-in. 200 ft.; W.O.S.R.
Lacreta Pet. Co. No. 1 L. H. Farmer, W. C. Winters Sur. A-863, 4,000-ft. test. Drk.
Phillips Pet. Co. No. 1 J. C. Arthur, sec. 3, G.H.&H. Sur. No. A-158. Drlg. 5,140 ft.
Reno Oil Co. No. 10 H. Wilmut A, sec. 4, S.P.R.R. Sur. A-1044. S.S.O. 3,760-66 ft.; 6⅝-in. 3,750 ft.; drlg. plug; testing; 500 ft. O.I.H.

Baylor County

J. F. Morrisey Co. No. 1 Jno. White Est., sec. 2483, T.E.&L. Sur. 10-in. 100 ft.; W.O.R.
Riddels, Pipes & Holcomb No. 1 W. H. Nichols, Jr., sec. 117, B.B.B.&C. Sur. A-95. Loc.
Wilcox O. & G. Co. No. 1 W. H. Portwood, sec. 3144, T.E.&L. Sur. Drlg. 4,156 ft.

Clay County

Walter Gant No. 1 Bryant Edwards, S. C. Beldon Sur. A-12, 6,000-ft. test. Drlg. 5,535 ft.
Wood Pet. & Roy. Corp. No. 1 I. H. Kempner, Blk. 44, Bosque Co. Sch. Ld. Sur. A-10. S.D.O. 2,330 ft.

Cooke County

Sinclair Prairie Oil Co. No. 1 J. M. Best, T. Toby Sur. A-1054. 9⅝-inch 4,875 ft.; O.S. 4,887-4,900 ft.; est. 500 bbls.; tstg.
Sinclair Prairie Oil Co. No. 1 Mrs. J. D. Putnam, T. W. Ward Sur. A-1089. Loc.

Denton County

L. & E. Oil Co. No. 1 J. Hancock Life Ins. Co., J. Thomas Sur. S.D.O. 4,002 ft.

Foard County

Wynne & Ed S. Smith No. 1 Worsham, J. M. Clay Sur. Drlg. 1,785 ft.

Hardeman County

Hillsboro Oil Co. No. 1 Thomas, sec. 314, W.&N.W. Sur. Spudded and set surf. csg.

Jack County

Noah Daves No. 1 K. D. Baker, sec. 2709, T.E.&L. Sur. 4,000-ft. test; S.D.O. 1,930 ft.
Harper Pet. Co. 1 Mary E. Norman, A. Pearson Sur. A-1304. O.S. 1,937-38 ft.; testing.

Knox County

Roeser Pendleton and I.T.I.O. No. 1 G. H. Beavers, sec. 151, H.&T.C. Sur. Drlg. 760 ft.

Montague County

Humble O. & R. Co. No. 1 E. G. Adams et al, I. H. Meeks Sur. A-506. Drlg. 1,650 ft.
H. H. Powell No. 1 Arch Durham, W. J. Wagoner Sur. A-936. S.D. 822 ft.
J. W. Sorrell et al No. 1 J. E. Walthall, Sam H. Smith Sur. A-662. S.D. 3,777 ft.

Wichita County

Aggers & Norwood No. 1 Ware, sec. 14, Cherokee Co. Sch. Ld. Loc.
C. W. Boller No. 1 S. Y. Collins, Charles Roberts Sur. A-540. 6⅝-in. 3,855 ft.; brkn. sdy. L. and O.S. 3,860-3,900 ft.; testing.
Continental Oil Co. No. 1 State Ins. Asylum, Blk. 1, Cherokee Co. Sch. Ld. Drlg. 5,070 ft.
Hanlon Buchanan, Inc., No. 1 Fassett & Tuttle-D, sec. 23, Cherokee Co. Sch. Ld. Drlg. 4,465 ft.
Madden & Goldsmith No. 1 Jackson, Blk. 20, Denton Co. Sch. Lds. S.D.O. 4,505 ft.
Shell Pet. Co. No. 1 Reilly, F. Jordan Sur., Abst. 167. 6⅝-in. 3,815 ft.; P.B. 3,880 ft., tstg. 100 bbls. per day.

Wilbarger County

Lloyd Brown No. 1 W. T. Waggoner, sec. 27, H.&T.C. Sur., Blk. 6. Setting surf. csg. at 100 ft.

Young County

Cosden Pet. Corp. No. 1 D. R. Sewell B, J. Bray Sur. A-1949. 6⅝-in. 3,774 ft.; S.L. 3,952-54 ft.; treated 3,000 gals. acid; flowed 20 bbls. per hour.
Homestead O. & G. Co. No. 1 J. F. Knight, R. Hamilton Sur. A-1,321. 6⅝-in. 3,763 ft.; S.L. 3,763-67 ft.; flowed by heads.
Horwitz & Oldom No. 1 C. J. Taach B, sec. 248, T.E.&L. Sur. Drlg. 2,072 ft.

RANGER (CENTRAL TEXAS) DISTRICT

Callahan County

Cooper, Weeks & Hughes No. 1 C. D. Straley, 660 ft. from W L, 1,880 ft. from N L, sec. 370, Geo. W. Denton Sur. Ordovician test; drlg. 4,335 ft.
Joe Gallagher No. 1 W. T. Harris, 200 ft. from S line, 1,050 ft. from E line sec. 347, G. W. Denton Sur. Drlg. 1,395 ft.
J. H. Howell No. 1 E. I. Vestal, 1,149 ft. E line, 1,000 ft. N line, Jesse Dyson Sur., 2 mi. NE Cross Plains. Rng. 7-in. 2,698 ft.
Hal Hughes No. 1 Tom Windham, 660 ft. from N and W lines SW¼ sec. 369, Geo. Hancock Sur. Drlg. 300 ft.
J. C. Jackson et al No. 1 Thompson, 2 mi. S. Eula, sec. 30, B.B.B.&C. Sur. Drlg. 2,390 ft.
Petroleum Drlg. Co. No. 1 Cook & Jordan, 760 ft. from E L, 1,838 ft. from N L, sec. 350, Geo. Hancock Sur. Ordovician. Drlg. 4,200 ft.
Wittmer Oil & Gas Properties, Inc. No. 1 R. D. Williams et al, 300 ft. from N line, 467 ft. from W line sec. 2,269, T.E.&L. Sur., 2 mi. NE Putnam, 4,500-ft. test. S.O. in Ellenburger 4,077 ft.; drl. sulf. wtr. 4,115 ft., T.D.; P.B.; shot 290 qts. 3,239-3,435 ft.; est. 50 B.W. and 10 B.O. P.D.; acidized 5,000 gal.; testing.

Coleman County

Anzac Oil Corp. No. 1 Burk, A. Williams Sur. Drlg. 896 ft.
R. M. Coleman No. 1 Ford, A. S. Lipscomb Sur. Drlg. 1,162 ft.
F. L. and E. R. Cooper No. 1 W. R. Stockard, 330 ft. from NL, 330 ft. from WL, N½ SE¼ sec. 22, T.&N.O. Sur. Rotary to 3,650 ft.; M.I.M.

S. M. Devine et al No. 1 Masterson, 2 mi. W of Burkett, Asa Wickson Sur. Drlg. 2,500 ft.
Garrett Oil Co. No. 1 W. S. Smith et al, 4 mi. SE Coleman, J. Thiele Sur. Drlg. by csg. 2,060 ft.
Bob Murray No. 1 Dibrell, H. Kigan Sur., near Camp Colorado. Fsg. 2,575 ft.

Eastland County

Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test, Drlg. 1,000 ft.
Dorothy Oil Co. No. 1 Mrs. J. L. Johnson, 1,000 ft. from S line, 1,080 from W line, E½ SW¼ sec. 29-4, H.&T.C. Sur. Drlg. 725 ft.
Hayner, Reaves & Hose No. 1 P. L. Larkin, 3 mi. NW Rising Star, 912 ft. from W line, 546 ft. from S line. NW¼, sec. 40-2, E.T.R.R. Sur. Tstg. 3,098 ft.
Neil A. Moore No. 7 Holcomb Heirs, 970 ft. from W line and 600 ft. from N line, SW¼ 1-4, H.&T.C. Sur. Loc.

Erath County

McGee Dev. Co. No. 1 Till Robinson, Wm. Ashworth Sur., 2 mi. SE of Desdemona. Drlg. 1,295 ft.

Fisher County

Forest Dev. Corp. & Daube No. 1 L. G. Bennett, 660 ft. from N and E lines, sec. 51-3, H.&T.C. Sur. Rotary to 4,500 ft.; 3 mi. SW of Rotan. Swbg., est. 30 bbls.; T.D. 3,699 ft.
Owens-Snebold & A. C. Varner No. 1 J. H. Millsap, 3,500-ft. wildcat, 2 mi. NW McCaulley, 330 SL 330 WL, sec. 61-2, H.&T.C. Sur. Drlg. 1,440 ft.

Haskell County

Algord Oil Co. No. 1 J. F. Jones, 330 ft. from S and W lines, E. T. Roche Sur. No. 4, Abst. 525. Loc.
Fain-McGaha Oil Corp. No. 1 T. G. Hendrick, C W½ sec. 104, Indianola Ry. Sur. Set 150 ft. of 12½-in.; S.S.G. 1,620-30 ft.; T.D. 2,686 ft.; P.B. to 2,684 ft.; swbd. 30 B.O. and 48 B.W.P.D.; deepening.

Jones County

Dunigan Bros. and Fred Hyer No. 1 Gaither, 4½ mi. N of Anson, sec. 38, B.B.B.&C. Sur. U.R. 8-in. 2,657 ft.
R. B. Farris No. 1 Chas. Donohoo, 220 ft. from S and E lines, N½ sec. 5, B.B.B. &C. Sur. Drlg. 1,200 ft.
Grisham-Hunter Corp. No. 2 E. D. Appling, 1,140 ft. fr. E L, 1,208 ft. S L, NW¼ sec. 32, B.B.B.&C. Sur. Loc.
S. C. Herring No. 1 B. L. Ellis, 330 ft. fr. N and E lines, SE¼ sec. 8-15, T.&P. Sur. Loc.
Humble No. 1 Riley Horton, 330 ft. from N line, 330 ft. from E line, sec. 40-18, T.&P. Sur. Drlg. 2,600 ft.
Humble No. 1 Dallas Joint Stock Land Bank, 990 ft. from W line, 4,458 ft. from S line of M. Fragosa Sur. 267. Drlg. 1,620 ft.
Iron Mountain No. 1 D. J. Herbst, 5 mi. E Hamlin, 330 ft. from N and E Sub 18, Austin Williams Sur. 339. Set 10-in. 2,245 ft.; wtr. 2,900-05 ft.; H.F.W. 3,150 ft.; drlg. 3,700 ft.
Chas. J. Kleiner No. 1 Mrs. A. E. Carlson, 333 ft. from S and E lines, NW¼ sec. 19-3, H.&T.C. Sur. Drlg. 2,900 ft.
F. W. Martin No. 1 B. N. Herndon, 330 ft. from S and W of NW sec. 1, M.E.&P. Sur. Drlg. 3,565 ft.
N. H. Martin & Son No. 1 J. W. Wyatt, 150 fr. S L, 316 fr. E L, W 102 ac. in sec. 4-14, T.&P. Sur. Loc.
Oil States Exploration No. 1 J. E. Sellers, 100 ft. from S line, 330 ft. from W line, S. Andrews Sur. 191. H.F.W. 1,785 ft.; S.S.O. 2,085-90 ft.; drlg. 2,130 ft.
L. H. Pearson No. 1 B. L. Hood, 1,100 ft. from S and W lines, W. T. Evans Sur. No. 1. Drlg. 1,360 ft.
S. B. Roberts Co. No. 1 Roy E. Prichard, 205 ft. fr. S L, 2,428 fr. E L, J. E. Cockrell Subdiv. 2, G. Martinez Sur. 195. Loc.
Shaheen Oil Co. No. 1 T. B. McCoy, 595 ft. from N line, 660 ft. from E line, sec. 1-16, T.&P. Sur. Drlg. 1,400 ft.
W. L. Snoddy & C. C. Dodson No. 1 C. L. Steffens et al, 220 ft. from S and W lines SW¼ NE¼ sec. 32-15, T.&P. Sur. S.D.O. 1,850 ft.
Ungren & Frazier No. 1 W. E. Fellows, 990 ft. from N line, 330 ft. from E line, S½ sec. 25-15, T.&P. Sur. Drlg. 2,096 ft.

Nolan County

Oyster, Harkrider et al No. 1 J. H. Withers, C SW¼ sec. 65-21, T.&P. Sur. Wildcat to drill 4,000 ft.; drlg. 1,200 ft.

Shackelford County

Joe DeGrazier No. 1 Harbough, E cen. part of county, sec. 1,563, T.E.&L. Sur. 4,500-ft. test. Drlg. 3,170 ft.
Forest Dev. & Helmerich & Payne No. 1 T. G. Hendrick, C sec. 1, A.B.&M. Sur. Show gas and oil cored 4,838-45 ft.; T.D. 5,056 ft.; set 7-in. to 4,818 ft. to test showing 4,819-37 ft. in Marble Falls.
R. H. Gordon & Frank Pethybridge No. 1 C. B. Snyder, 330 ft. fr. N and E lines, sec. 38, L.A.L. Sur., 4,500-ft. test. Loc.
J. G. Hammond No. 1 Coker, 1,620 ft. from S line and 1,020 ft. from W line, sec. 159, B.B.B.&C. Sur. U.R. 8-in. 2,380 ft.; T.D. 2,610 ft.
D. W. Power No. 1 Black Ranch, C SE 80 ac. of NE½ sec. 391, T.E.&L. Sur., Ellenburger test.

Stephens County

Lone Star No. 1 E. H. Brooks, 400 ft. from S and W lines, NE 200 ac. of sec. 54-7, T.&P. Sur. Drlg. 675 ft.
Lone Star No. 1 J. S. McKee, 660 ft. from N line, 660 ft. from W line, sec. 41-7, T.&P. Sur. Drlg. 2,200 ft.
G. Willard Rich No. 1 J. W. Andrews, 330 ft. W line, 450 ft. S line, NW¼ sec. 39-7, T.&P. Sur. Flowed est. 200 bbls. in 4 hrs.; T.D. 3,675 ft.

Stonewall County

Bert Fields No. 1 R. P. Pierson, C of E 80-ac., E. A. & S. M. Lee Sur., Abst. 817. Drlg. 2,175 ft.
General Crude Oil Co. No. 1 J. D. Smith, SW cor. county, 330 ft. from S and E lines of sec. 371, H.&T.C. Sur., Blk. 2 Set 13⅝-in. 2,119 ft.; set 10-in. 3,508 ft.; Cmt. 150 sacks; S.S.O. at 3,970 ft.; drlg. 4,508 ft.
F. B. Parriott No. 1 H. T. Carlile, 330 ft. from S line, 990 ft. from E line, SW¼ NE¼ sec. 293, Blk. D, H.&T.C. Sur., rotary to 5,500 ft., 6 mi. NW of Swenson. Set 8¼-in. at 3,345 ft.; set 6-in. to 3,896 ft.; drlg. 4,615 ft.
Percy Jones No. 1 fee, 330 ft. W line, 220 ft. from N line, sec. 2, Austin & Williams Sur. 348. Spudded.

Taylor County

Lewis Production No. 1 L. Henslee, 330 ft. from E L of 234-ac. tract in J. A Nabors Sur. No. 10 and sec. 27-17 T.&P. Sur., 4 mi. E of Merkel. S.S.O. 2,035-40 ft.; drlg. 2,347 ft.

Throckmorton County

Crawford & Brown No. 1 J. A. Matthews, Narcissa Thompson Sur. Est 10,000,000 ft. gas daily at 774 ft.
Jones & Stasney No. 1 C. T. Brockman, 330 ft. S line, 330 E line sec. 95 Comanche Indian Sur. Est. 60 to 75 bbls. 4,286-98 ft.
Marland-Drake No. 1 Dickie Bros., center T.E.&L. Sur. 2226. Set 5-in. 3,925 ft.; S.S.O. 3,938-43 ft.; 5,000 gals. acid.; S. D.O.
Morris & Spoonts No. 1 Alden Bros., NW cor. county, 1,350 ft. from E line and 5,210 ft. from S line of Raymond Sanches Sur. A-248. Drlg. 1,178 ft.
White & Duncan No. 1 Raynolds Cattle Co., 330 ft. from S and W lines, NE¼ sec. 83, Comanche Indian Reservation. Set 10-in. at 1,405 ft.; drlg. 2,300 ft.
Henry Zweifel No. 1 J. H. Lee, 4 mi. NE of Woodson, 930 ft. from E line and 2,011 ft. from S line of J. A. George Sur. S.S. oil 3,902-06 and 3,914-20 ft.; T.D. 3,924 ft.; set 6-in. and cmt. 3,894 ft.; acid 5,000 gals.; swbg. oil and wtr.

Louisiana to Extend Life of Oil Code Commission

BATON ROUGE, La.—A proposal extending the life of the commission codifying Louisiana's mineral laws was reported favorably to the senate by a senate judiciary committee. The commission was created by the 1936 legislature to assemble all the state's mineral laws and their judicial interpretations in a single document.

Sidney Herold of Shreveport, commission chairman, submitted to the governor a code which brought such strong opposition from certain oil interests and attorneys that the legislature refused to adopt it.

The code's opponents opposed it mainly on the ground the commission exceeded its authority by injecting personal ideas into the work instead of sticking to a compilation of existing law and jurisprudence.

Apparently the legislature's policy now is to give the commission another two years to round out the code's controversial angles. The life of the commission expires this year under the present law.

Canadian Fields

(Continued from Page 106)

the field for interests associated with Standard Oil Co. of California.

In the Barnwell field, Border Petroleums, Ltd., has rigged cable tools to deepen Canadian Western Natural Gas Co. No. 6, LSD 5, section 32-9-17w4, standing since 1923 with 10-inch casing cemented at 2,400 feet. It is planned to drill out cement and deepen 800 feet to the lime contact where oil production is expected.

On the Rogers-Imperial structure east of Coutte, Range Oil & Gas Co. No. 3, LSD 15, section 20-1-11w4, is deepening from 1,765 feet, where 12½-inch casing was cemented last fall.

In the Lethbridge area, Northwest Co. No 1 Lethbridge Southern, LSD 8, section 1-8-21w4, is below 3,265 feet. West of the city, Lethbridge Petroleums & Refining No. 1, LSD 12, section 11-8-22w4, is below 2,730 feet after cementing against caving.

In the Steveville district, Anaconda Oil Co. No. 1, LSD 9, section 9-22-12w4, has cased to bottom at 1,207 feet preparatory to deepening.

East Central Alberta

In the Vermilion area, East Central Alberta, Wain Town Gas & Oil Co. No. 1, LSD 16, section 26-50-7w4, is shut down at 965 feet waiting for 8-inch casing.

In the Ribstone field, Blackfoot-Ribstone Oils No. 1, SE quarter section 28-43-2w4, is below 700 feet with considerable gas.

Dina Oil & Refining Co. No. 4, LSD 13, section 9-45-1w4, completed last spring as a fair producer of heavy crude, has been equipped with fluid pack pump to overcome production difficulties The output will be handled locally by a small refinery, to which a new unit with hot oil pumping equipment, return tube still and bubble tower is being added.

Petrolia Field

In the Petrolia shallow field, Lambton County, Ontario, William J. Hussey and associates of Petrolia are arranging for systematic testing of various methods of increasing crude production. The Hussey syndicate has applied for a lease of the Hall Wood farm on the Blind Line, owned by the town. It is planned to drill to the oil sands, about 500 feet, and shoot with dynamite, operate for a month on natural production, and then acidize and compare results. Similar tests will be made of the water-flood and heavy gas vacuum pump methods of increasing production. The Petrolia-Enniskillen field has been producing for approximately 75 years and at present consists of very small producers economically operated by central pumping units with jerker rods. While the aggregate recovery has been very large, it is believed that a large proportion of the original crude content is still in the sand and cannot be recovered by ordinary pumping methods.

Drilling Contractors

(Continued from Page 81)

of the Conroe field, E. R. Kirkpatrick has derrick up for No. 1 Foster Lumber Co. in the T.&N.O. Survey No. 7. West of the Hardin field, Texas Co. is scheduled to move in material for No. 1 D. D. Page, a projected deep test in the J. Hanney Survey.

Nicklos Drilling Co. joint test with Continental Oil Co. in the Lockport field, Calcasieu Parish, has apparently been successful as the well flowed oil and wash water through perforated casing at 5,325-34 feet. Before the well cleaned itself, the screen sanded up and the tubing was being pulled to clean out and retest. The well is located on the west flank of the field. Additional sands showing oil and gas were cored at 4,700, 4,900 and 5,100 feet. Three rotaries are operating in the Villa Platte field for Continental Oil Co., one at the South Roanoke field in Jefferson Davis Parish which is a joint test with the same company and one at the Harang field for Pan American Production Co.

Smith & McDannald completed Danciger Oil & Refining Co. No. 1 Carter in the Pledger field for a gas well; has spudded Tide Water Associated Oil Co. No. 1 South Coast Corp. in the Raceland field in Lafourche Parish, and is coring for the sand for the same company in the Eureka field in Harris County. Drilling operations continue with 10 other rotaries in the Dickinson, Five Corners, Hardin, Port Barre, Hastings and Lake Long fields.

Glenn H. McCarthy is nearing a critical depth in Stanolind Oil & Gas Co. No. 1 Freeman, located in the Katy field, Waller County. Late in the week the hole was below 10,275 feet and it is reported to have encountered strong gas pressures below 10,000 feet. McCarthy has two operations for himself at the Hardin field, Liberty County, and is completing another well in the Benavides field, Duval County.

Oil Man's Calendar

July

27-28—Charleston, W. Va., West Virginia Oil and Natural Gas Association.

August

31-Sept. 3.—Spokane, Wash., Pacific Coast meeting American Institute of Electrical Engineers.

September

5-9—Milwaukee, Wis., American Chemical Society.
14-16—Atlantic City, N. J., National Petroleum Association, thirty-sixth annual meeting, Hotel Traymore.
14-16—Santa Barbara, Calif., annual meeting Pacific Coast Gas Association. Biltmore Hotel.
27-29—St. Louis, Mo., National Association of Petroleum Retailers, annual meeting.
27-Oct. 2—El Paso, Tex., midyear meeting American Association of Petroleum Geologists.

October

6-7—Tulsa, Society of Automotive Engineers, National Regional Fuels and Lubricants meeting.
6-7—San Antonio, Tex., fall meeting petroleum division American Institute of Mining and Metallurgical Engineers.
6-8—Knoxville, Tenn., fall meeting of industrial minerals division of American Institute of Mining and Metallurgical Engineers.
10-14—Chicago, National Safety Congress, Stevens Hotel.
12-13—Indianapolis, Ind., Indiana Independent Petroleum Association, fall convention, Hotel Severin.
13-15—Los Angeles, Calif., Society of Automotive Engineers, Aircraft Production meeting, Ambassador Hotel.
18—Tulsa, annual meeting of National Stripper Well Association.
18—Tulsa, annual meeting of Oklahoma Stripper Well Association.
19-21—Tulsa, Independent Petroleum Association of America.
20-21—Los Angeles, Calif., industrial minerals division and petroleum division of American Institute of Mining and Metallurgical Engineers.
27-29—San Antonio, annual meeting, Texas Mid-Continent Oil and Gas Association.

November

1-5—Tucson, Ariz., regional meeting American Institute of Mining and Metallurgical Engineers.
14-18—Chicago, A.P.I. annual meeting, Stevens hotel.

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1938 High	1938 Low	Week ending June 25 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
72½	55	3,200	70	61½	68½	Amerada Corp.	788,675	N.P.	50cQ	4-30-38	$2.00	114⅞	51½	125½	75
24	17¾	20,300	23⅞	20⅛	23¾	Atlantic Refining	2,663,999	$25	25cQ	6-15-38	1.00	37	18	35⅛	26⅝
19	12⅛	12,500	19	16	19	Barber Co.	390,223	$10	75c	12-16-37	1.00	43⅜	10⅛	38½	21
16⅜	10⅛	38,000	15¾	13¼	15⅛	Barnsdall Oil Co.	2,250,344	$5	25cQ	5-2-38	1.00	35¼	10	28¼	14⅛
10½	7	37,700	9¾	8½	9⅝	Consolidated Oil Corp.	13,915,167	N.P.	20cQ	5-14-38	.90	17⅞	7	17¼	11½
34⅜	21¼	27,200	31½	27⅜	30⅞	Continental Oil of Delaware	4,682,583	$5	25cQ	6-30-38	1.50	49	24	44⅞	28⅛
8⅞	5	30,000	7⅞	6½	7⅞	Houston Oil (new)	1,098,618	$25		10-17-30	....	17⅝	4¾	13⅞	6⅝
22⅝	12¼	8,200	17¾	15¾	17¾	Mid-Continent Petroleum	1,857,912	$10	25c	6-1-38	1.50	35⅜	14	30⅞	17¼
17¾	10⅝	2,900	15	13¼	15	Mission Corporation	1,382,945	$10	$1	6-29-38	1.25	34	15	29⅞	16⅜
23	14⅛	26,000	20	15½	20	National Supply	1,155,170	$10	$2 pf.‡	12-22-37	(‡)	41⅜	17⅝	75½	19⅞
14⅞	9	25,300	11¼	9⅝	11	Ohio Oil Co.	6,563,377	N.P.	50c	12-15-37	1.00	22⅞	8	18	12⅛
15⅞	10¼	2,200	12¼	11	12	Pacific Western Oil	1,000,000	N.P.	75c	12-15-37	.75	29¾	11⅝	23½	11⅝
9¼	7	No sales ..	..	..	..	Pan American Pet. & Trans.	4,702,945	$5	$1 *	12-21-37	1.00	17⅛	7	20⅝	12¼
42½	27¼	32,600	39½	33⅛	39½	Phillips Petroleum	4,449,052	N.P.	50cQ	6-1-38	2.75	64	30⅛	52⅜	33⅛
20⅝	15	9,600	20⅝	18¾	20⅜	Plymouth Oil Co.	1,029,800	$5	35cQ	3-31-38	1.65	29⅞	13	27¾	11⅞
13½	8¼	42,500	11⅛	9¼	11	Pure Oil Co.	3,285,120	N.P.	25c	12-1-37	.25	24⅜	8¾	27⅞	16
7⅞	5	12,500	6¼	5¼	6⅛	Richfield Oil Corp.	3,896,638	N.P.	25c	12-24-37	.25	6½	4⅛	..	..
27½	15½	7,700	22¾	20¼	22⅜	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	6-15-38	1.00	54⅛	16	44	30½
18¼	10	13,500	15	12½	15	Shell Union Oil	13,070,625	N.P.	50c	12-20-37	1.00	34¾	14⅞	28¼	14⅝
34¾	18½	8,800	27¼	22½	27¼	Skelly Oil	1,003,949	$15	50c	6-25-38	1.50	60⅝	26½	47⅜	19½
16⅜	10¾	76,500	15¼	13¼	15	Socony-Vacuum	31,151,071	$15	25c	3-15-38	.80	23¼	13	17½	12½
33⅞	25⅛	34,700	30½	26½	30½	Standard Oil of California	13,014,754	N.P.	35cQ†	6-15-38	2.00	50	27⅛	47⅝	35
35½	24⅜	25,800	31⅞	28	31⅞	Standard Oil (Indiana)	15,267,030	$25	25cQ	6-15-38	2.30	50	26½	48½	32⅜
35½	32½	100	35	35	35	Standard Oil of Kansas	112,837	$10	$5	12-20-37	5.00	43	30⅝	31	25
54⅛	39¾	58,000	52½	47¼	52½	Standard Oil of New Jersey	26,224,767	$25	$1SA†	6-15-38	2.50	76	42	70⅜	51⅛
57⅞	45	700	52⅛	49	52⅛	Sun Oil	2,316,484	N.P.	25cQ	6-15-38	$1 & 8% Stk.	77½	44½	91	70
3⅜	1⅜	16,600	2¾	2⅜	2¾	Superior Oil Corp.	1,388,079	$1			....	7¾	1½	6¾	3
44⅞	32⅝	64,000	43⅜	38¾	43⅜	Texas Corp.	10,875,006	$25	50cQ	7-1-38	2.25	65⅛	34¾	55¼	28⅞
4⅞	2⅝	7,100	3¾	3⅛	3¾	Texas Gulf Producing Co.	888,136	N.P.	10c	12-23-37	.10	9⅝	2	8⅞	4⅜
10⅛	7	17,600	10	8⅞	10	Texas Pacific Coal & Oil	888,237	$10	10c	6-1-38	.40	16⅝	5⅜	15¼	7½
15½	10⅛	16,600	14½	12⅜	14½	Tide Water Associated	6,369,175	$10	25cQ	6-1-38	1.20	21⅝	13⅛	21¾	14¾
21⅝	17⅜	7,100	20¼	18⅛	20¼	Union Oil of California	4,666,270	$25	30cQ	5-10-38	1.40	28¼	17½	28½	20¾
23½	20	1,100	21⅜	20¾	21	Union Tank Car Co.	1,200,000	N.P.	30cQ	6-1-38	1.60	31½	22	31⅝	22⅝
2¾	1⅝	1,400	2½	2⅛	2½	Wilcox Oil & Gas	506,522	$5	....	5-10-28	....	6¼	1¾	5¼	2¾

*Payable in 3½% notes. †Includes extras. ‡One-tenth share $2 preferred stock.

New York Curb Exchange

1938 High	1938 Low	Week ending June 25 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
9⅜	5	4,100	7⅝	6½	7½	American Republics Corp.	1,308,049	$10	30c	12-27-37	$0.40	10	6⅝	..	..
10¼	5⅛	4,600	6½	5½	6½	Bridgeport Machine Co.	260,000	N.P.	1.25	12-30-37	$2.00	21⅜	7	21	13¼
39	32½	No sales ..	..	..	..	Buckeye Pipe Line Co.	200,000	$50	50cQ	6-15-38	3.75	51½	36	50	39¾
110	97	150	103	102	103	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	6-27-38	7.00	123	95½	124¾	105
11	7¾	5,000	9⅞	8¼	9⅜	Cities Service (new)	3,714,317	$10	....	6-1-32	....	5⅝	1½	7⅝	3
2⅜	⅞	6,200	1¼	1	1⅛	Cosden Petroleum	462,551	$1	....	.....	....	5½	1½	4½	1½
27½	17½	3,500	22	20¼	21½	Creole Petroleum	6,975,383	$5	50cSA†	6 10-38	1.00	38¾	20¼	39	19⅞
8¾	5½	400	7½	7⅜	7½	Darby Petroleum	351,390	$5	25cSA	7-15-38	.50	18⅝	6½	18⅛	9
3½	2	200	2½	2¼	2½	Derby Oil & Refining	263,162	N.P.			....	8⅜	2¼	6¾	1⅞
31	22⅝	No sales ..	..	..	..	Eureka Pipe Line	50,000	$50	$1Q	5-2-38	4.00	47½	24½	47½	38½
42⅞	33	11,700	41	37	41	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-38	1.00	63½	33	59	36
70	56	4,300	67	61	67	Humble Oil & Refining	8,987,840	N.P.	37½c	7-1-38	2.00	87	54⅞	80	57
19½	15	4,000	16⅞	15⅞	16⅞	Imperial Oil of Canada	26,965,078	N.P.	62½cSA†‡	6-1-38	1.25	24¼	14½	24½	19¾
8¼	6⅝	400	7½	7	7½	Indiana Pipe Line	300,000	$10	30c	5-14-38	.80	15	5⅞	9¾	5½
31¼	23	10,100	25⅞	24	25¼	International Petroleum	14,324,088	N.P.	$1.25†‡	6-1-38	2.50	39½	23½	39⅝	32⅝
5	3	100	3½	3½	3½	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	8¾	2⅝	5¾	2⅝
25⅛	15⅝	5,700	22½	19⅞	22¼	Lion Oil Refining	434,820	N.P.	25cQ	4-20-38	1.50	34	12½	17¾	7⅜
9¼	6⅝	3,600	8⅜	7¾	8⅛	Lone Star Gas	5,533,747	N.P.	20c	4-20-38	.60	14¼	5¼	14¼	9⅞
9⅜	6½	11,900	7¾	7	7⅜	Louisiana Land & Exp.	2,977,449	N.P.	10cQ	6-15-38	.50	15¼	6¾	15⅜	9⅞
8½	6⅜	1,600	7¾	7¼	7¾	Midwest Oil Co.	998,444	$10	50c	6-15-38	1.00	14⅝	6¼	..	..
5⅝	4½	1,400	5⅜	5	5¼	Mountain Producers	1,593,584	$10	30cSA	6-15-38	.60	7⅞	4⅛	8⅜	5
14⅝	12⅛	3,200	13¾	13⅜	13⅜	National Fuel Gas	3,810,183	N.P.	25cQ	7-15-38	1.00	19½	12	23	17⅜
9¼	7¼	600	8	7½	8	National Transit	509,000	$12.50	35cSA	6-15-38	1.00	12½	7¼	15¾	9¼
2⅝	1½	200	1½	1½	1½	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	.....	5	1¼	6⅝	1⅝
4½	4	100	4¼	4¼	4¼	New York Transit	100,000	$5	15c	4-15-38	1.00	5⅜	3⅞	6¼	4¼
6	4	100	5½	5½	5½	Northern Pipe Line	120,000	$10	20c	6-1-38	1.00	12¾	5¾	9¾	4⅞
7⅜	3¾	31,400	5½	4⅞	5	Pantepec Oil	2,441,142	$1	....	.....	....	9⅝	2¾	10⅛	3¼
3½	1⅝	2,100	2½	2	2¼	Root Petroleum Co.	336,045	$1	25c	2-1-37	.25	13¾	2	19¼	4½
4	2⅛	300	2¾	2½	2½	Ryan Consolidated	296,931	N.P.	..	.....	....	6½	2¼	4¾	1⅞
5⅜	3⅜	No sales ..	..	..	..	Southern Pipe Line	100,000	$10	15cSA	3-1-38	.45	7¼	3⅞	7⅞	3¼
39	28¾	1,000	38	33¼	37	South Penn Oil	1,000,000	$25	50cQ†	6-30-38	3.65	56	35	44	32½
22¼	19	No sales ..	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50cQ	4-1-38	2.00	42	20	60	44
18	15	2,900	17⅜	16½	17⅜	Standard Oil of Kentucky	2,604,790	$10	25c	6-15-38	1.50	21½	14¾	23⅜	17⅛
7½	6⅛	100	6⅝	6⅝	6⅝	Standard Oil of Nebraska	166,403	$25	25c	3-29-37	.25	13¾	8	14⅝	11
22	16¼	1,100	20⅞	18½	20	Standard Oil of Ohio	753,740	$25	25c	6-15-38	1.50	45	16	40	21¾
3¼	2⅛	9,300	3⅛	2⅝	3	Sunray Oil	2,006,176	$1	10c	12-24-37	.25	4⅜	2	5	2⅝
4⅜	3½	300	4⅜	4⅛	4⅜	Texon Oil & Land	936,024	$2	15cQ	6-30-38	.45	7⅜	2	9⅜	5⅜
7⅝	4¼	4,300	6	4⅞	6	Transwestern Oil Co.	750,000	$10				13⅞	4⅝		
5¼	2¾	27,700	4⅛	3⅜	3⅞	United Gas Corp.	7,818,959	$1	....	.....	....	13⅜	3	10⅜	4

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

PERSONAL

ED. BORGOLTE, with experience of many years in refining and tankcar oil marketing, has joined the sales force of Petroleum Oils Corporation, Kansas City, Mo.

W. R. STITELER, head of Sun Oil Company's land department in Beaumont, Tex., was honored recently on completion of 30 years of service with the company. The 30-year service emblem was presented by C. B. WILSON.

JAKE L. HAMON, Dallas, Tex., independent producer in the Southwest and active in affairs of the Mid-Continent Oil and Gas Association, is spending the summer touring European countries and visiting Paris, London, and other capitals. He sailed from New York early this month accompanied by members of his family.

CHARLES W. BRYAN, former governor of Nebraska, with associates, is drilling a test well in Pawnee County, in the southeastern part of that state.

WINFIELD GIVENS, district manager for the Sun Oil Company, has transferred his headquarters from Mattoon, Ill., to Evansville, Ind. The district embraces Sun production activities in Illinois, Indiana and Kentucky.

ANDREW AGNEW, London, managing director of the Shell Transport & Trading Co., Ltd., and director of many of the affiliated companies in the Royal Dutch-Shell group, has been awarded a knighthood in King George's birthday honors.

FRANK REINAUER, head of the Reinauer companies' large independent petroleum distributing organizations, which operate chiefly in New Jersey, has returned to his home in Ridgewood, N. J., following an operation in the Medical Center in New York.

G. G. OBERFELL, vice president of the Phillips Petroleum Company and head of the company's research department, is away from his offices in Bartlesville, Okla., this week on a business trip in the East. He expected to attend the annual meeting of the American Society for Testing Materials in Atlantic City, N. J., June 27 to July 1.

J. C. WATSON, Abilene, Tex., member of the West Central Texas Oil and Gas Association staff, reported a gain in membership of almost 100 per cent in the past three months at an outing held by the association last week at Lake Brownwood. Hosts for the informal party at the lake were E. A. UNGREEN and ART FRAZIER, of Abilene, and T. E. HOLDEN and W. E. TYLER of Cross Plains.

D. E. PARK, of New York, manager of the Colombian Petroleum Company, sailed for Puerto Colombia June 24, accompanied by MRS. PARK.

EDWARD DANIEL MANION, Tulsa, and MISS MILDRED FRANK YOUNT, Beaumont, Tex., were married Monday, June 27, in St. Paul Catholic Church, Lexington, Ky. Mr. Manion is a son of JOHN A. MANION, Tulsa, vice president and general manager of the Sinclair Refining Company's pipe line department. The bride's father, Frank M. Yount, who left an estate estimated to have been worth $50,000,000 at his death in 1933, discovered the prolific deep-sand production which brought the old Spindletop field in Texas back to life. Following a European honeymoon, Mr. and Mrs. Manion will reside in Beaumont. Mr. Manion is an attorney.

E. H. GRASER, vice president of the Ellmag Oil Corporation, Luling, Tex., has left for a stay of three months in Europe, planning to spend most of his time in Berlin.

JOHN DEITMAN, Sun Oil Company watchman at Marcus Hook, Pa., has received a 35-year service emblem. The award was made by W. D. MASON, superintendent of the refinery.

DR. J. A. L. HENDERSON, vice chairman and consulting engineer of New Brunswick Gas & Oilfields, Ltd., London, sailed from England recently to spend about six months in the United States and Canada on professional business.

CHRISTOPHER JOHNSON and JAMES R. HOLDER, of Maracaibo, Venezuela, where both are associated with the Lago Petroleum Company, arrived in New York last week. Mr. Holder was accompanied by MRS. HOLDER and their son. JAMES B. O'BRIEN, also of Lago's Maracaibo organization, arrived on the same boat.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

George S. Bole, formerly of Robinson, Ill., will locate in Tulsa where he will be associated with the large Milliken interests in the Mid-Continent field.

J. A. Pollard and A. G. Heggem, Bureau of Mines experts, have shown Cushing, Okla., producers that the mud-laden system of conserving gas may be successfully utilized. They have finished the drilling of two wells with no gas waste, hermetically sealing the gas horizon in both holes. Terrific gas pressure and large volume of gas around 710 feet have hampered operations in the field heretofore.

Prairie Oil & Gas Company has started construction of an 8-inch pipe line from Carrollton, Mo., to Alton, Ill., a distance of 275 miles. It will supply oil at the rate of 20,000 barrels per day to a refinery in Wood River, Ill.

20 YEARS AGO

Fred S. Rich, 57, of oil City, Pa., president of the Crude Oil Company and the Ritchie Gas Company, dies in Clarksburg, W. Va.

The Towanda pool in Butler County, Kansas, is over a year old but is still turning out 10,000-barrel wells occasionally. Empire Gas & Fuel Company owns the latest gusher, and it boosts the Empire's current production to 73,000 barrels per day, worth $2.25 per barrel.

10 YEARS AGO

The American Petroleum Institute will sponsor an effort to formulate a national petroleum industry code of ethics.

When the Atlantic Pipe Company's line and that of the Texas Pipe Line Company from Winkler County to the Gulf Coast are laid the West Texas fields will have nine long pipe line outlets with a carrying capacity of 305,000 barrels of crude per day.

Tract 73 in Osage County, Oklahoma, with 45 wells, has produced 9,760,000 barrels in 22 years. It occupies parts of two sections in the Avant district, but only a little more than half the two sections were developed.

W. B. OSBORN, independent oil operator of Ada, Okla., has moved his office to San Antonio, Tex.

WALDO SHELDON, Socony-Vacuum Oil Company manager in Venezuela and Colombia, left New York last Saturday aboard the Santa Rosa.

E. G. GOEBEL, office manager for the Skiatex Petroleum Company and J. R. Phillips interests in Amarillo, Tex., is recovering from an operation for appendicitis.

JOHN C. KUNKEL, JR., head of the Oklahoma Royalties Company of Tulsa, but a resident of Harrisburg, Pa., is the Republican nominee for congress in his district.

BOB ADAMS, of the Adams Production Company, former East Texas operator with headquarters in Gladewater, has moved to Fort Worth, Tex., where he will reside while developing a block recently acquired in West Texas.

R. E. WERTZ, president of the Amarillo Gas Company, Amarillo, Tex., has returned from the East after attending exercises at the University of Pennsylvania in Philadelphia in which his son, ROYAL WERTZ, graduated from the school of medicine. The two visited New York, Chicago, and Kansas City, Mo., on their trip home.

REECE HUBERT, employed in the refinery of the Texas Company in Houston, Tex., was awarded the National Safety Council president's medal last Thursday for saving the life of C. O. HOLDER, who was overcome by gas while working with him at the bottom of a tank. The medal was presented at a picnic of Texas employes at Texaco Park by F. C. JONES, agent of the refining department, who represented the company.

PARAGRAPHS

CHARLES W. PREWETT received the petroleum engineering fellowship awarded by the Shell Oil Company for the ensuing year at Stanford University, and CHARLES H. SHOMATE the company's chemistry fellowship. Both students reside in Bakersfield, Calif.

JAMES L. COOK, secretary and assistant treasurer of the Ohio Oil Company, Tulsa, has retired after 41 years' continuous service. Mr. Cook, born in Meyersdale, Pa., in 1876, joined Ohio when he was 21 as telegraph operator, clerk and stenographer in the Toledo office. In 1903 he was made cashier in Van Buren, Ind., and three years later was sent to Casey, Ill. Mr. Cook was made treasurer in 1912 and he continued in that office till 1919, when the Mid-Kansas Oil & Gas Company, a subsidiary, required him as treasurer at Mineral Wells, Tex. After the Mid-Kansas office had been moved to Tulsa in 1923 he served as vice president, treasurer and assistant secretary for that company and the Marathon Oil Company, a subsidiary, until it was absorbed by the Ohio in 1937.

JAMES P. DUNNIGAN, independent operator in Michigan, has been made president and general manager of the Producers Refinery, Inc., West Branch, in the recent reorganization of its management and directing personnel. He succeeds CARL WESTLUND. ROBERT JONES, another well-known oil operator, was appointed comptroller for the company.

E. F. TEGTMEYER, assistant manager of the railway sales division of the Standard Oil Company of Indiana, will retire on company annuity July 1 after 23 years of service. He joined Standard Oil in 1915 as lubrication engineer on steam railroads and industrial plants, was placed in charge of the railway sales department under the general manager in 1921 and was promoted to his present post in 1925.

TED A. HALL has resigned as chief engineer in the production division of the Tide Water Associated Oil Company, Houston, Tex., to become chief oil appraisal engineer for the First National Bank in Dallas, Dallas, Tex. His work will be in the bank's department of oil loans.

A. F. BOUDREAU became sales manager of the Akin Gasoline Company last week and will move to Tulsa, headquarters of the company, from St. Louis, Mo., where since 1934 he had been operating as an independent oil marketer. Akin, which formerly handled natural gasoline only, has enlarged the scope of its business to include a wide range of petroleum products. During his 20 years in the marketing branch of oil Mr. Boudreau has been associated with the Meridian Petroleum Corporation and the Danciger Oil & Refining Company.

JACK LEVERING, field man in Houston, Tex., for the Stanolind Crude Oil Purchasing Company, has been named state agent of the new Stanolind Oil Purchasing Company, formed by the Standard Oil Company of Indiana to buy crude oil on the Gulf Coast.

F. L. AURIN, president of the Southland Royalty Company, who recently moved from Ponca City, Okla to Fort Worth, Tex., stepped out on a new golf course at the latter city a few days ago and scored his first hole-in-one.

L. H. TAYLOR, president of the Oil Belt Safety Conference, has announced that its annual 1939 meeting will be held in Abilene, Tex. HORACE CONDLEY, Cisco, Tex., was named vice president and J. C. WATSON, Abilene, secretary.

ALLEN FIDEL, son of A. G. FIDEL, formerly purchasing agent for Stanolind Oil & Gas Company in Casper, Wyo., is in Kilgore, Tex., as a member of the federal tender board staff. He is working under JACK STEELE, former supervisor in Casper for the U. S. Geological Survey.

HOWARD E. FELT, secretary of the Warren Petroleum Company, Tulsa, left Saturday for Mayville, N. Y., on Chautauqua Lake, accompanied by MRS. FELT and their children, JEAN, JOAN, and JANET. They will spend several weeks there, with fishing, boating and golf among their diversions.

MAJOR JOHN BRYCE SHAW, district land man in North Texas for the Ohio Oil Company at Wichita Falls, Tex., accompanied by MRS. SHAW, is receiving active duty training at Fort Sam Houston, San Antonio, Tex. Major Shaw served with the 110th machine gun battalion and the sixth infantry during the World War.

High Jump and a Degree

When F. W. Floyd, vice president in charge of production for the Carter Oil Company, left the University of Missouri in 1916 he had accumulated a master's degree in civil engineering, an indoor pole vault record of 12 feet 8¾ inches, and an excellent start in geology. He treats his degrees casually, but crowd him hard and he will admit the pole-vault achievement (it stood as a world record for a time) is something worth talking about. His interest in geology grew and six years later, though going well on a professional career, he took time out for half a year to study advanced geological methods at the University of Chicago.

F. W. FLOYD

Upon graduating from the University of Missouri young Floyd joined the Empire Oil & Gas Company as a geologist. In 1917 he went overseas as an officer of the Seventh Engineers. Following his discharge in 1919 he served the Atlantic Oil Producing Company and the National Exploration Company as a geologist. When the Roxana Petroleum Corporation acquired the latter organization he went to Colombia, South America, as geologist for the Tropical Oil Company. Upon his return in 1922 he went back to school for more geology. That over, he joined the Carter. He was made chief petroleum engineer in 1932, assistant general superintendent and production engineer a year later, then production manager. Recently he was made vice president. He married Miss Julia Graves of St. Louis. They reside in Tulsa.

A. K. TYSON, division geologist for the Continental Oil Company in Houston, Tex., is spending his vacation in West Texas and New Mexico.

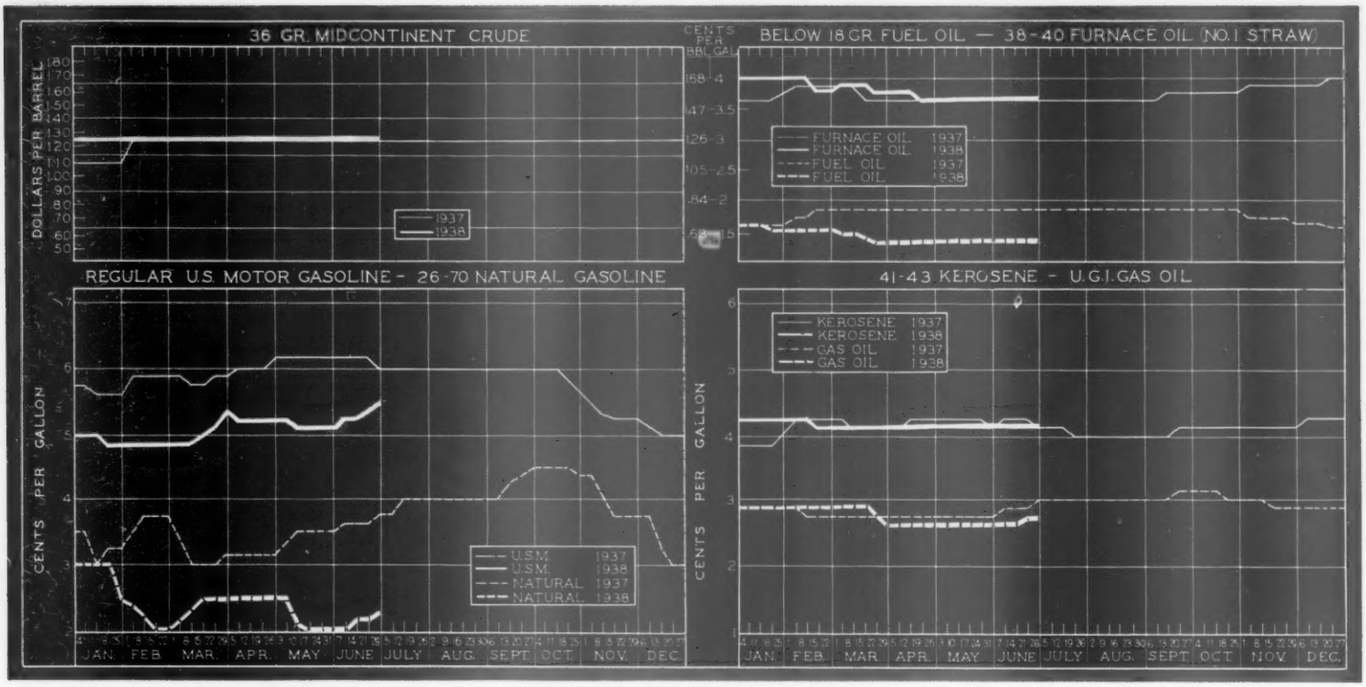
ALFREDO BUSTAMANTE, connected with the Caribbean Petroleum Company in Maracaibo, Venezuela, arrived in New York recently on a pleasure and business trip.

J. C. HANRAHAN, E. W. BERRY, and W. C. HOGUE were in general charge of arrangements for the annual Humble Oil & Refining Company picnic in Cisco, Tex., last week. Approximately 700 employes and their families in the West Central Texas district attended.

J. B. CASHELL, of Longview, Tex., president of the Freeman W. Burford employes association, announces that it will publish a house organ, "The Burford Booster." H. H. HAPER, also of Longview, is vice president, and C. N. WATTS, Rodessa, secretary-treasurer of the association.

R. H. BEDFORD, JR., manager of Essomarine sales (shallow draft), for the Standard Oil Company of New Jersey, has assumed additional responsibilities as field assistant in sales promotion of automotive and accessory lines for the Esso Marketers. He will continue as active as formerly in the marine field.

MICHAEL L. HAIDER has resigned as chief engineer of the Carter Oil Company to join the engineering staff of the Standard Oil Company of New Jersey in New York. He has been succeeded by IVAN S. SALNIKOV, formerly division superintendent for Carter in the Burbank district of western Osage County. It was under Mr. Salnikov's direction that the repressuring program in the Burbank field was carried to a successful conclusion.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Holiday Demand Stimulates Gasoline Market in Group 3; Prices Higher

By T. F. SMILEY

Refiners in the Group 3 area were getting an eighth more for all grades of gasoline this week, and prices, still tugging at the guy-ropes, looked as though they might go to still higher levels. Independence Day demand, heightened by reason of its bringing another triple holiday, was keeping refiners busy taking care of shipping instructions and was worrying some because of scant supplies. Difficulty reported by buyers in finding needed material pointed to a sold-out condition.

Although demand for all grades was robust, that for low-octane was particularly insistent "I've been offering a quarter-cent more than the ruling quotations, and I haven't been able to uncover anything," declared one refiner whose customer requirements were far in excess of the output of his own plants.

Indiana Restores Prices

Of significance was the action of the Standard Oil Co. of Indiana Wednesday of this week in restoring normal tank-wagon prices to consumers on third-grade gasoline, kerosene and tractor fuel throughout its territory.

Several circumstances contributed to the scarcity of low-octane motor fuel. One, of course, was the fact that many of the plants closed in recent months were large producers of this grade. Then too some large refiners have virtually discontinued manufacture of low-octane gasoline, buying from other refiners to meet the wants of their own trade. Of growing importance in this division of the refinery market is the steadily rising demand from tractor owners. Refiners who used to ship large quantities of kerosene for agricultural use say demand for that material shows a distinct falling off, but compensating for this loss of business is a proportionate increase in the demand for low-octane gasoline.

No post-holiday dullness was expected in the gasoline trade. With pleasant motoring weather over the elongated week-end, it was believed next week would see lively ordering by jobbers to replenish exhausted stocks.

U. G. I. gas oil, long occupying an obscure market position, has been striding into the foreground in recent weeks. The better prices obtainable now for high-octane gasoline are found to justify use of the gas oil for cracking purposes, and the fact that supplies of straightrun gasoline have been getting scarce affords an additional reason for turning to the cracking process in the effort to build up inventories. Prices for U. G. I. gas oil were reported increasingly firm this week.

Refined Oil Market Barometer

Holiday buying imparted fresh momentum to the gasoline market, with higher prices accompanying the livelier demand in large areas. Refilling of jobber tanks next week, with swelling tourist requirements, should maintain motor fuel business at high levels. Blending for fall specifications is expected to stir increased demand for natural gasoline. Movement of light fuels good.

MID-CONTINENT. Gasoline scarcer and higher. Naturals steadier. Heating oils firm.

EAST COAST. Gasoline stronger, with prices up. Kerosene weak. Heavy fuels stagnant.

GULF COAST. Gasoline stronger. Gas oils firm, with prices slightly higher.

CALIFORNIA. Gasoline, both domestic and export, slightly softer. Gas oil and diesels weaker.

PENNSYLVANIA. Fuel oil for cracking fairly active. Wax firm. Gasoline steady.

CHICAGO. Gasoline stronger, with holiday demand brisk. Low-octane material hard to get.

Naturals Looking Better

Natural gasoline was showing symptoms of starting on its seasonal climb. The 26-70 grade, which had been selling at 2⅛ cents flat in Oklahoma for several weeks, responded to a little new buying and went to 2¼. Texas quotations showed no change. The market generally was exhibiting a better tone, and it was believed to be in a position to respond promptly to any increased briskness in buying. Most of the recent buying has been done by jobbers. Refiners have not begun buying for their fall specification fuels, but most of them will start soon after the Independence Day rush is out of the way.

Heating oils were moving satisfactorily, with jobbers buying steadily for cold-weather needs. Some of the majors were reported to be in the market in order to supplement their own production, their action being prompted by brisk inquiries of jobber customers in the North. The call for the No. 2 straw and No. 2 dark grades was said to be especially lively, with no difficulty in disposing of any of these materials in hand.

Kerosene was displaying a slightly better tone, with buyers in some areas willing to pay a little more than they have been. The lubricant group lacked life. Wax was firm, with the higher prices holding. Heavy industrial oil was dull.

Gasoline Gains New Strength in East, With Price Rising

By H. STANLEY NORMAN

NEW YORK, June 28.—Socony-Vacuum Oil Co. advanced the New York tankcar price of gasoline a quarter-cent yesterday, making the price of 65-octane unleaded gasoline 7¼ cents a gallon. The price for regular (Mobilgas) was advanced to 7½ cents. Other large marketers said they probably would meet the increase.

The present trend in petroleum markets—strength in motor fuels and weakness in fuel oils—is being accented each week. Last week was no exception. The heavy cut in gasoline stocks reported for the week ended June 18 was the heaviest of the year to that time.

Early in the week pressure on the heavy fuel market was recognized by a general break of 10 cents per barrel along the entire Atlantic Coast and 5 cents per barrel at Gulf Coast ports.

Motor fuel prices were boosted in New Jersey six-tenths of a cent per gallon by Standard Oil Co. of New Jersey in its minimum retail resale stipulation. The consumer tankcar quotation was raised fifteen-hundredths of a cent, making Essolene (regular) 7 4/10 cents per gallon at Newark and Atlantic City. The Standard Oil Co. of New Jersey minimum retail resale price is two-tenths of a cent per gallon below that posted 10 days earlier by Cities Service. Most other New Jersey marketers operating under provisions of the state fair-trade law have met or will meet the advance which brings motor fuel in that area nearer a parity with metropolitan New York prices. The motor fuel market in New York City has been disturbed for two weeks with third-grade gasoline selling as low as 13 1/7 cents per gallon. Regular motor fuel is offered in numerous parts of New York City at six gallons for 98 cents, 16⅓ cents per gallon. Conditions are stable outside the city limits with regular selling at 18 cents.

The tankcar market for above 65-octane gasoline in New York appears firm at current quotations, with barge prices a quarter-cent lower. There is evidence that the market is in position to make further advances, perhaps as early as the second week in July when dealers will be compelled to replace stocks drawn upon over the triple holiday. Some Gulf Coast suppliers are now asking 6 cents per gallon for 70-octane gasoline for July and August loading, which is from one-eighth to one-fourth of a cent higher than the spot market. Additional purchases of high-octane gasoline on the Gulf Coast by integrated companies have reduced the available supply materially. Buyers are finding difficulty in locating supplies of high-octane motor fuel.

Most concern in the northeastern market last week revolved around the Texas July proration order. In the words of one of the leading executives a return in Texas to a seven-day production week may "crack things wide open." Practically all refiners have curtailed their runs to stills to a conservative point by which stocks of motor fuel can be reduced to a comfortable margin by the end of summer. However, if crude production is permitted to run ahead of sound levels the rate of refining will move ahead in pace which executives last week said will go far in minimizing the progress made during the past month or six weeks.

One cargo of 70,000 bbls. of 64-66 375 endpoint motor fuel was sold on the Gulf Coast last week for shipment to France at 4¾ cents. Efforts by other export buyers to duplicate this price were reported unsuccessful. Inquiries developed that export gasoline is held by most refiners for 4⅞ cents per gallon. Last week's cargo sale was the first reported in several weeks and may mark an end to the lack of export interest.

Kerosene is weak in practically all markets. Some New York suppliers dropped their tankcar prices to 5 cents. The price range on the Gulf Coast is generally considered from 3⅞ to 4 cents per gallon, but even at these figures is reported weak.

Other light fuel oils are slightly stronger on the Gulf Coast, but no change has developed in the price. Light fuel oils were weak at North Atlantic terminals with some suppliers dipping their quotations for No. 2, No. 3 and No. 4 material one-eighth to one-fourth of a cent per gallon at Boston and Providence.

Pennsylvania product prices showed no particular reaction to the crude cut of the preceding week. Most refiners said the crude cut had been discounted considerably earlier in the product prices. Lubricating oils were said to be moving fairly briskly against contracts with prevailing prices unchanged from the preceding week.

Fuel oil for cracking stock was fairly active in western Pennsylvania, suppliers being inclined to elevate their prices from one-eighth to one-fourth of a cent per gallon. It is pointed out in this connection that the better prices now obtainable for high-octane gasoline are encouraging refiners to employ the cracking process to a greater degree than formerly.

Wax was reported scarce at some plants. Spot prices were generally higher with those in position to make delivery asking 2 1/5 to 2¼ cents per pound for 124-126 grade, New York. Gulf Coast refiners also reported the demand for wax fairly active and prices there were slightly higher than before.

Gulf Coast lubricating oil prices were reported in unsettled condition with jobber demand light. Pennsylvania refiners are experiencing much the same type of season on lubricating oils. Shipments in both areas against contracts are said to be satisfactory. Inter-refinery purchases in the Pennsylvania district, an important feature during May and part of June, have tapered off to practically nothing at present.

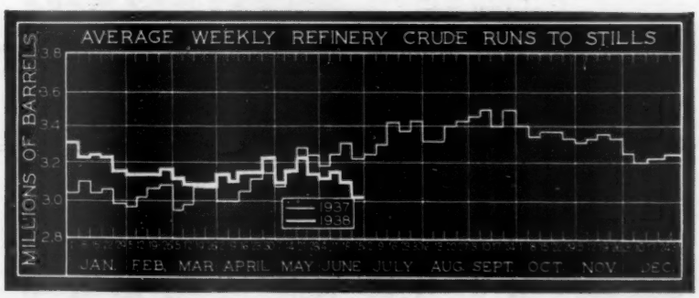
Deliveries of both motor fuel and lubricating oil against orders all of this week are expected to be brisk in anticipation of the record consumption July 2, 3 and 4.

A. P. I. Weekly Refinery Statistics

Week Ending June 25, 1938

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	491,000	22,507,000	12,292,000
Appalachian	88.4	103,000	3,163,000	1,180,000
Indiana, Illinois, and Kentucky	92.4	394,000	13,338,000	8,704,000
Oklahoma, Kansas, and Missouri	84.7	296,000	7,246,000	4,143,000
Inland Texas	56.6	121,000	2,383,000	1,741,000
Texas Gulf	95.7	687,000	10,370,000	11,142,000
Louisiana Gulf	96.6	112,000	2,821,000	3,399,000
North Louisiana and Arkansas	63.7	34,000	503,000	816,000
Rocky Mountains	69.7	50,000	1,984,000	866,000
California	90.9	439,000	13,837,000	90,718,000
Total reported	89.0	2,727,000	78,152,000	135,001,000
Estimated unreported	.....	298,000	4,260,000	2,800,000
*Estimated total	.....	3,025,000	82,412,000	137,801,000
*Estimated total, previous week	.....	3,080,000	84,476,000	137,007,000
*June 26, 1937	.....	3,235,000	75,427,000	100,395,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending June 18, 1938	295,931,000 barrels
Week ending June 11, 1938	297,197,000 barrels
Week ending June 19, 1937	307,465,000 barrels

Figures for June 11 and June 4 do not include stocks of heavy, unrefinable California crude which were 17,309,000 bbls. and 17,295,000 bbls., respectively. Figures on heavy crude for year ago not available.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of June 28, 1938

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Dlr.	Inc. tax	Kero. tank-wag.
Chicago, Ill.	15.6	13.6	4.0	10.5
Decatur	15.6	14.1	4.0	10.5
Joliet	15.6	14.1	4.0	10.5
Peoria	15.6	14.1	4.0	10.5
Quincy	15.4	13.9	4.0	10.3
Davenport, Ia.	15.6	14.1	4.0	‡10.5
Des Moines	15.4	13.9	4.0	‡9.8
Mason City	15.8	14.3	4.0	‡10.7
Duluth, Minn.	17.4	15.9	5.0	11.3
Mankato	17.0	15.5	5.0	10.9
Minneapolis	17.0	15.5	5.0	10.9
LaCrosse, Wis.	17.0	15.5	5.0	10.9
Green Bay	17.4	15.9	5.0	10.3
Milwaukee	16.8	15.3	5.0	10.7
Detroit, Mich.	15.3	13.8	4.0	9.0
Grand Rapids	14.8	13.8	4.0	9.7
Saginaw	16.3	14.8	4.0	9.3
Evansville, Ind.	17.1	15.6	5.0	‡11.0
Indianapolis	17.3	15.8	5.0	‡11.2
South Bend	17.6	16.1	5.0	‡9.4
Fargo, N. Dak.	17.2	15.7	4.0	12.1
Minot	18.5	17.0	4.0	13.4
Huron, S. Dak.	17.5	16.0	5.0	11.4
Kans. City, Mo.*	14.9	13.4	4.0	8.5
St. Louis*	15.2	13.7	4.0	8.0
St. Joseph*	14.9	13.4	4.0	9.8
Wichita, Kans.	14.4	11.6	4.0	7.8

***State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.**

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wag-on prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over 7 cents; Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Tank-wag. dlr.	Tank-car con'r.	Inc. tax	Kero. tank wag
Atl'tic City, N. J.	13.4	11.4	4.0	8.0
Newark	13.4	11.4	4.0	8.0
Annapolis, Md.	14.85	13.35	5.0	9.5
Baltimore	14.25	12.75	5.0	9.0
Cumberland	16.65	14.15	5.0	10.0
Wash'g'n, D. C.	12.5	11.0	3.0	9.5
Danville, Va.	16.95	14.45	6.0	12.9
Norfolk	15.75	13.25	6.0	11.5
Petersburg	16.05	13.55	6.0	11.7
Richmond	16.05	13.55	6.0	11.7
Roanoke	17.25	14.75	6.0	12.9
Charles'n, W. V.	17.05	14.55	6.0	12.6
Parkersburg	15.35	13.85	6.0	11.2
Wheeling	16.25	14.85	6.0	12.2
Charlotte, N. C.	18.65	16.15	7.0	12.1
Hickory	19.15	16.65	7.0	12.5
Mt Airy	18.95	16.45	7.0	12.3
Raleigh	18.25	15.75	7.0	11.6
Salisbury	18.75	16.25	7.0	12.2
Charleston, S. C.	17.25	14.75	7.0	10.6
Columbia	18.25	15.75	7.0	11.6
Spartanburg	18.95	16.45	7.0	12.4

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be the equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline Tank-wag.	Net dlr.	Inc. tax	Kero. tank-wag.
Atlanta, Ga.	20.0	17.0	7.0	*12.0
Augusta	21.0	18.5	7.0	11.5
Macon	21.0	18.5	7.0	12.0
Savannah	20.0	17.0	7.0	*12.0
Birm'ham, Ala.	21.5	18.5	8.0	12.0
Mobile	22.0	19.0	9.0	11.0
Montgomery	21.5	19.5	9.0	13.0
Jackson, Miss.	20.0	17.0	7.0	10.0
Vicksburg	20.0	17.0	7.0	10.0
Jacks'ville, Fla.	20.5	17.5	8.0	8.0
Miami	21.0	18.0	8.0	11.0
Pensacola	22.5	19.5	9.0	12.0
Tampa	20.0	17.0	8.0	10.5
Lexington, Ky.	20.0	17.0	6.0	10.5
Covington	18.0	15.0	6.0	10.5
Louisville	19.0	16.0	6.0	10.0
Paducah	19.5	16.5	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Effective June 4, 1938, 2 cents per gallon discount eliminated from all kerosene markets in Mississippi, Alabama, Georgia, and Florida, markets being reduced correspondingly to a net basis.

***Includes 1-cent state tax.**

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Dealer	Inc. tax	Kero. tank-wag.
Denver, Colo.	14.0	5.0	11.5
Grand Junction	19.0	5.0	15.0
Pueblo	16.5	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	13.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	19.5	6.0	13.0
Helena	20.0	6.0	15.5
Great Falls	19.0	6.0	15.5
Salt Lake City, Utah	18.0	5.0	16.0
Twin Falls, Ida.	21.0	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	*6.5	12.0

***Includes city tax of one-half cent.**

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Tank-wag. con't.	Di-vided dlr.	Inc. tax	Kero tank-wag.
Ohio points	16.5	15.5	5.0	*13.0

***Includes state tax of 1 cent.**

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Tank-wag.	Tank-car	Inc. tax	Kero tank wag.
Albany, N. Y	14.5	12.5	5.0	9.0
*Met. N. Y.:				
M'htt'n, Br'nx	14.0	12.5	5.0	8.75
Staten Island	14.0	12.5	5.0	8.75
Q'ns & Bklyn.	14.0	12.5	5.0	8.75
Buffalo	14.0	13.0	5.0	7.5
Rochester	15.0	13.2	5.0	8.5
Syracuse	14.5	13.1	5.0	9.0
Boston, Mass.	13.0	12.0	4.0	8.5
Portland, Me.	15.0	13.0	5.0	8.75
Manch'ter, N.H.	15.0	13.6	5.0	9.0
Burlington, Vt.	15.4	13.4	5.0	9.5

***Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.**

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank-wag.	Serv. sta.	Inc. tax	Kero. tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.5
Reno, Nav.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

***Includes 5-cent state tax.**

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wag.	Dlr.	Inc. tax	Kero. tank-wag.
Omaha	18.0	16.5	6.0	10.8
McCook	18.7	16.5	6.0	10.5
Norfolk	18.4	16.9	6.0	11.2
North Platte	18.8	17.3	6.0	11.6
Scotts Bluff	19.5	18.0	6.0	12.3

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Tank-wag. dlr.	Tank-car con'r.	Inc. tax	Kero. tank-wag.
N. Orleans, La.	19.0	16.5	*10.0	†12.0
Baton Rouge	17.0	14.5	8.0	12.0
Alexandria	17.5	15.0	8.0	10.5
Lafayette	18.0	15.5	8.0	12.5
Lake Charles	18.0	15.5	8.0	12.5
Shreveport	16.5	14.0	8.0	9.5
Kn'xv'lle, Tenn.	20.0	17.5	8.0	14.0
Memphis	18.0	15.5	8.0	12.0
Chattanooga	19.5	17.0	8.0	13.5
Nashville	19.0	16.5	8.0	10.5
Bristol	19.0	17.75	8.0	14.5

***Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.**

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline Tank-wag. dlr.	Tank-car con'r.	Inc. tax	Kero tank-wag.
Philadelphia, Pa.	13.75	12.25	5.0	10.0
Pittsburgh	15.0	13.0	5.0	10.5
Allentown	14.25	12.75	5.0	10.5
Erie	14.5	13.0	5.0	10.0
Scranton	14.5	13.0	5.0	10.5
Altoona	15.0	13.0	5.0	10.5
Dover, Del.	13.5	....	5.0	10.5
Wilmington	12.5	....	5.0	9.75
Springf'd, Mass.	13.5	....	4.0	8.0
Worcester	13.0	....	4.0	8.5
Hartford, Conn	13.6	....	4.0	7.0
New Haven	13.5	....	4.0	7.0
Providence, R. I.	13.0	....	4.0	8.0

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Dealer	Inc. tax	Ker-tank wag.
Muskogee, Okla.	14.5	5.0	7.5
Oklahoma City	13.5	5.0	7.0
Tulsa	14.0	5.0	6.0
Ft. Smith, Ark.	14.25	5.0	7.5
Little Rock	16.75	7.5	8.0
Texarkana	14.0	5.0	8.5

Texas

	Gasoline Tank-wag.	Serv. sta.	Inc. tax	Kero. tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	14.0	18.0	5.0	8.0
Houston	14.5	19.0	5.0	8.0
San Antonio	13.5	17.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

***Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.**

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	21.0	6.0	17.5
Toronto, Ont.	22.0	6.0	17.0
Hamilton, Ont.	22.0	6.0	17.0
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	28.1	7.0	22.8
Regina, Sask.	26.0	7.0	22.0
Saskatoon, Sask.	28.3	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta	23.5	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

***Imperial gallon used in Canada.**

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Imperial Oil, Ltd., June 21 reduced tank-wagon gasoline 1 cent in Regina, 1½ cents in Saskatoon, and one-half cent in Calgary.

Standard Oil Co. (Nebraska) June 23 advanced tank-wagon gasoline 1.2 cents in McCook; advanced dealer gasoline 1.5 cents in McCook and Scotts Bluff; .4 cent in North Platte; advanced tank-wagon kerosene 1 cent in McCook, .9 cent in Norfolk, and .6 cent in North Platte.

Standard Oil Co. of Kentucky reduced tank-wagon and dealer gasoline as follows: June 10, 1 cent in Atlanta; June 15, .5 cent in Covington; June 4, .5 cent in Tampa. Advanced tank-wagon and dealer gasoline as follows: June 20, 1 cent in Lexington, Mobile, Atlanta, Jacksonville and Tampa; .5 cent in Paducah, Jackson, Birmingham, Montgomery, Augusta, Macon, Savannah, Miami, and Pensacola; June 6, reduced tank-wagon gasoline 3 cents and dealer gasoline 1 cent in Jacksonville; June 17, reduced kerosene .5 cent in Covington, Lexington and Louisville; June 15, reduced kerosene 2.5 cents in Jackson, Vicksburg and Augusta; 2 cents in Macon; June 14, reduced kerosene 3 cents in Jacksonville.

Standard Oil Co. of New Jersey announces that beginning July 1 holders of credit cards issued by Standard of New Jersey, Colonial Beacon Oil Co., Kesbec, Inc., and the Standard Oil companies of Pennsylvania and Louisiana will be able to use their cards throughout the United States and Canada.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of June 28, 1938

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
60-62 400 grades:		
62 oct. and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
64-66 375	.04⅞	.05
68-70 360	.05⅛	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
60-62 400	.04¾	.04⅞
64-66 375	.04⅞	.05

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
62 octane and below		.04⅝
63-66 octane	.04⅞	.05
67-69 octane	.05¼	.05⅜
70-72 octane (regular)		.05¾

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below		.04¾
67-69 octane		.05¼

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
60-62 400 grades:		
62 octane and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
64-66 375	.04¾	.05
68-70 360	.05	.05¼

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane		.05¼
65 octane	.06½	.06¾
68-70 octane	.07	.07¼

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06¾	.08¼
58-60 400, 65 oct. and higher	.07¾	.09

EAST COAST (domestic)—

U. S. Motor, 60-64.9 octane:		
New York (Bayonne)	.06¼	.06½
Philadelphia	.06¼	.06½
Boston	.06½	.06¾
Baltimore	.06½	.06¾
Charleston, S. C.	.07	.07¼
U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.07
Philadelphia	.06½	.07
Boston	.06¾	.07
Baltimore	.07	.07¼
Charleston, S. C.	.07¼	.07½

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05	.05½
60-64.9	.05⅛	.05⅛
65 octane and higher	.05⅜	.05½
68-70	.05¾	.06

Naphtha

PENNSYLVANIA (inland refineries)—

52-56 450 (blending)	.04¾	.05

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02¼
Grade 18-55	.02⅜	.02¾

NORTH TEXAS—

Grade 26-70		.02
Grade 18-55	.02⅜	.02½

CALIFORNIA—

75-85 375-390	.06½	.07

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70		.02⅜

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110 flash, 540-550 e.p.	.03⅞	.04
41-43 gr., 300-520 i.b.p., 110-125 flash, 500-520 e.p.	.04	.04⅛
46-48 gr., 210-230 i.b.p., 480 max., e.p.	.04⅜	.04½

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04⅛	.04¼
42-44	.04¼	.04⅜

NORTH TEXAS—

41-43	.04⅛	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43	.04⅛	.04⅜

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04⅜	.04⅝

PENNSYLVANIA (inland refineries)—

45		.05
46		.05⅛
47		.05¼

CHICAGO (Based on Group 3)—

41-43	.04¼	.04⅜
42-44	.04½	.04⅝

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.05	.06

NEW YORK (Bayonne, N. J.)—

41-43	.05¼	.05½

***GULF COAST (domestic)—**

41-43	.03⅞	.04

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅞	.04
No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03½	.03⅝
No. 2 dark, 32-36	.03¼	.03½
No. 3 zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03¼	.03½

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36	.03¼	.03½

CHICAGO (Based on Group 3)—

Range oil	.03⅞	.04¼
No. 1 prime white, 38-40	.03¾	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03¾
No. 2 dark, 32-36	.03¼	.03½
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NEW YORK (Bayonne, N. J.)—

*No. 1		.05¾
*No. 2		.04¼
*No. 4		.04¼

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02¾	.02⅞
No. 4, low cold test, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.90
No. 5, low cold test, 18-22	.70	.75
Below 18 fuel oil, industrial	.55	.60

NORTH TEXAS—

U.G.I. gas oil	.02¾	.02⅞
No. 4, low cold test, 24-28	1.00	1.10
No. 5, low cold test, 18-22	.70	.75
Below 18 fuel oil, industrial	.55	.60

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial		.80

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02¾	.02⅞
No. 4, low cold test, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.95
No. 5, low cold test, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low cold test, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (inland refineries)—

36-40	.03¼	.03⅜

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.20	1.40
24 plus diesel, per bbl.	1.15	1.40
24 plus diesel (bunkers)	1.25	1.55
12-16 (bunkers at tidewater)	.80	.90
10-16 (cargo lots)	.65	.83
12-17 (tankcars)	.60	.90
10-17 (high sulfur)	.50	.85
San Joaquin Valley:		
10-18 (tankcars)	.60	.80
24 plus diesel, per bbl.	1.25	1.50
San Francisco:		
24 plus diesel, per bbl.	1.45	1.55
24 plus diesel (bunkers)	1.50	1.55
10-16 (bunkers)		.95

GULF COAST—

No. 2 fuel		.03½
43-47 diesel		.03⅞
48-52 diesel	.03½	.03⅝
53-57 diesel	.03⅝	.03¾
Bunkers (bulk cargoes)		.70
Bunker C (bunkers)		.75

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04⅛
28-30 diesel (lighterage 6¼c per bbl.)		1.75
28-30 diesel (tankers)	.04¼	.04½
Bunker C (to ocean-going ships in N. Y. harbor)		1.05
Industrial fuel (tankcars)	.04	.04⅛

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.19
150-160 D, 0-10	.14½	.16
150-160 D, 15-25	.13½	.15½
150-160 E, 15-25	.13	.15
100-110 D, 0-10		.14½
Steam refined:		
631 green (treated)		.12½
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour test	.15	.15½
15 pour test	.14	.14½
20 pour test	.13	.13½
25 pour test	.12	.12½
Steam refined:		
600	.08½	.09
650	.10½	.11½
600 Pennsylvania flash	.11	.13
630 flash	.14	.15
600 Warren E filtered	.13	.14

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:		
150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-3½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 Cold Test:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08¾	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° color, 400-405 flash:		
Zero pour test	.13½	.14
10 pour test	.12½	.13
15 pour test	.12	.12½
25 pour test	.11	.11½
180 vis. at 70° F., 3 color:		
25 pour test	.13	.13½
200 vis. at 70° F., 3 color:		
Zero pour test	.14½	.15
10 pour test	.13½	.14
15 pour test	.13	.13½
25 pour test	.12	.12½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02¼	.02½

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0210	.0220
124-126 (a.m.p.) w.c. scale	.0210	.0220

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0420
125-127 (a.m.p.) wax		.0435
128-130 (a.m.p.) wax		.0445
130-132 (a.m.p.) wax		.0455
133-135 (a.m.p.) wax		.0500
135-137 (a.m.p.) wax		.0515
124-126 (a.m.p.) w.s.		.0185
124-126 (a.m.p.) y.s.		.0185
Petrolatum in barrels, carload lots:		
Dark green	.02	.02½
Amber	.02¾	.02½
Extra amber	.02¾	.02¾
Lily white	.05½	.05¼
Snow white	.06½	.06¼
Cream	.04½	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.05
60-62 400	.05	.05½
61-63 390	.05½	.05¾
64-66 375		.05½

LOS ANGELES—

U. S. Motor grades:		
55-65 octane	.05¼	.05½
65-69 octane		.05¾
Above 69 octane		.06

KEROSENE

GULF COAST—

41-43 prime white	.03¾	.04
41-43 water white	.03⅞	.04

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.15	.15½
600 S.R. unfiltered	.16	.16½
630 S.R. unfiltered	.17	.17½
600 flash, S.R.	.17	.17½
630 flash, S.R.	.20½	.21
Bright Stocks:		
8 color	.16¾	.16½

NEUTRAL OIL

200-3 color	.21½	.22
150-3 color	.19½	.20

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0453
Crude Scale:		
124-126 w.s.	.0185	.0200
124-126 y.s.	.0185	.0200

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

(Effective January 28, 1937)

East Texas (May 22, 1937)*	$1.35
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90
Lisbon, La. (Dec. 13, 1937)*	.98

*Caddo Crude Oil Purchasing Co.

Gulf Coast

(Effective January 28, 1937)

Choctaw and Darrow, La. See note below	
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 28, 1937)	1.24

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36. Effective October 1, 1937, Stanolind Oil & Gas Co. in Evangeline, La., pays 92 cents for below 20 gravity, adding 2 cents for each degree upward to 40 and over, at $1.34.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light*†	1.30
Grass Creek, Wyo., heavy (May 1, 1938)*	.50
Hamilton Dome, Wyo. (May 1, 1938)*	.45
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light (May 1, 1938)*	.65
Hogback, N. M. (Jan. 28, 1937)*	1.33
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†‡	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table).	
Artesia, N. M. (Jan. 2, 1937)‡	.90
Maljamar, N. M. (Jan. 28,1937)‡	.90
Canon City and Florence, Colo.	1.10
Lance Creek, Wyo.*	.97
Lander, Wyo. (Jan. 1, 1938)§	.51½
Sunburst, Mont. (Nov. 16, 1937)†	.90
Cat Creek, Mont. (Jan. 1, 1938)‡	$1.30
Garland, Wyo. (Jan. 1, 1937)†	.50

*Stanolind Oil & Gas Co. and Ohio Oil Co. †Ohio Oil Co. ‡Continental Oil Co., Texas Co. (April 1, 1938). §Hudson Oil Co.

Middle Western States

OHIO OIL CO.
(Effective January 28, 1937)

Lima	$1.00
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (Jan. 5, 1938)*	1.12
West Branch, Mich. (Dec. 29, 1937)†	.80
Buckeye (Jan. 8, 1938)	1.09½
Arenac, Mich. (Dec. 29, 1937)†	.80
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky (June 22, 1938)	1.30

*Posted by Pure Oil Co.
†McClanahan P. L. and Simrall. Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

West Texas

See gravity table.

Pecos County*	$ .91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Southwest Texas

(Effective January 28, 1937)

Pettus	$1.37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09
Lytton Springs	1.12
Luling	1.00

Saxet and Taft take same gravity table as Gulf Coast.

Eastern States

TIDE WATER ASSOCIATED OIL CO. and NEW YORK TRANSIT CO.
(Effective June 13, 1938)

Bradford, Pa.	$1.80
Allegany, N. Y.	1.80

SOUTH PENN OIL CO.
(Effective June 13, 1938)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	$1.80
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	1.46
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.40
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.30
Corning Grade Oil in Buckeye Pipe Line Co., line (June 16, 1938)	1.17

PENNZOIL CO.
(Effective June 13, 1938)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	$1.73
Includes Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	1.72
Includes Tidioute district.	
Group C	1.71
Includes Turkey and Tidioute districts.	
Group D	1.70
Includes Bear Creek and Porkey districts.	
Group E	1.68
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	

PURE OIL CO.
(Effective June 13, 1938)

Cabin Creek, W. Va.	$1.40
Bradford Hollow, W. Va.	1.40
Kelly Creek, W. Va.	1.40

Canada

Ontario (Sept. 9, 1933)*

Petrolia	$2.10
Oil Springs	2.17
TURNER VALLEY NAPHTHAS AND CRUDE OIL (January 5, 1938, by Imperial Oil, Ltd.)	
Clear naphtha and discolored naphtha, 65 gravity and higher	$2.14
Discolored naphtha and crude oil, 40-40.9 gravity	1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity	1.62
These prices f.o.b. producers field tankage.	

*Imperial Oil, Ltd.

Crude Oil Price Changes

South Penn Oil Co. effective June 16 reduced the price of Corning, Ohio, crude 10 cents per barrel or to $1.17.

Ohio Oil Co. effective June 22 reduced the price of western Kentucky crude oil 10 cents or to $1.30 per barrel. The price was met by Producers Pipe Line Co. on the same day and by the Fordsville Pipe Line Co. on June 23 in fields outside of Birk City where the Fordsville company cut the price to $1.25.

Bay Petroleum Corp. of McPherson, Kans., effective June 1 established a crude price based on its relation to the average price of 70-72 octane gasoline, which brought down the price of crude it buys to 34 cents per barrel below the regular posted price in the state. Some producers in Rush County accepted the price and others found an outlet through another company at the posted price for Kansas crude.

Crude Prices by Gravities

	Oklahoma-Kansas	Oklahoma-Kansas	North and Central Texas	East Central Texas (Mexia district)	North Louisiana-Arkansas	Gray County, Texas	Hutchinson-Carson counties, Texas	Rodessa, Louisiana-Texas and Panola County, Texas	Conroe, Tomball, Raccoon Bend, (Deep) Satsuma	Gulf Coast	Gulf Coast	Lea County, N. Mex. West Texas except Pecos County	Mirando district, Texas	Marion County, Texas	Refugio, Greta, Saxet, Taft, Texas	Anahuac, Flour Bluff, Dickson, Turtle Bay	White Castle, Louisiana	Iowa, Louisiana	Cayuga, Texas
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Bel. 18	....	....	....	....	....	....	....	....	....	$.95	....	....	....	....	....	....	....	$.90	....
18-18.9	....	....	....	....	....	....	....	....	....	.95	....	....	....	....	....	....	....	.92	....
19-19.9	....	....	....	....	....	....	....	....	....	.95	....	....	....	....	....	....	.94	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	.95	$.95	....	$.96	....	$1.01	....	.96	.96	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.98	....	1.03	....	.98	.98	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	1.00	....	1.05	....	1.01	1.01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	1.02	....	1.07	....	1.04	1.04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1.07	....
Bel. 25	....	$.98	....	....	$.90	....	....	$.93	....	....	....	....	....	$.90	....	....	....	....	$.88
25-25.9	....	1.00	....	....	.92	....	....	.95	....	1.10	1.10	$.78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1.02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	.92
27-27.9	....	1.04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	1.17	....	1.17	1.17	.96
Bel. 29	$1.06	....	$.96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1.08	1.08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1.19	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	1.21	$1.16	1.21	1.21	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	1.23	1.18	1.23	1.23	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	1.25	1.20	1.25	1.25	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	1.27	1.22	1.27	1.27	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	1.29	1.24	1.29	1.29	1.08
Bel. 35	....	....	....	....	....	$.96	$.91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	1.31	1.26	1.29	1.29	....
36-36.9	1.22	1.22	1.12	1.19	1.14	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	1.33	1.28	1.29	1.29	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	1.35	1.30	1.29	1.29	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	1.37	1.32	1.29	1.29	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	1.39	1.34	1.29	1.29	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	1.41	1.36	1.29	1.29	....

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Bay, Eason, El Dorado, Cities Service, Falcon, Globe, Gulf, Johnson, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.
Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.
Column 3—All purchasers.
Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co.
Columns 5, 6, 7 and 8—All purchasers.
Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)
Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)
Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.
Column 12—All purchasers.
Column 13—All purchasers (effective July 6, 1937).
Column 14—Magnolia Petroleum Co.
Column 15—Humble Oil & Refining Co. (effective July 6, 1937).
Column 16—Humble Oil & Refining Co.
Columns 17 and 18—Shell Petroleum Corp.
Column 19—Tide Water Oil Co.

Rocky Mountain Runs

Production estimates for week ended June 25:

	Bbls.
WYOMING	
Salt Creek	15,620
Big Muddy	1,150
Frannie	2,440
Garland	2,260
Grass Creek	2,980
Hamilton dome	3,000
LaBarge	950
Lance Creek	11,200
Lost Soldier	1,770
Medicine	3,220
Oregon Basin	3,140
Osage	780
Quealy dome	740
Rock River	1,470
South Casper	490
Wertz	920
Miscellaneous	1,720
Total Wyoming	53,850
MONTANA	
Border	110
Cat Creek	550
Cut Bank	8,020
Dry Creek	1,390
Kevin-Sunburst	3,770
Pondera	700
Total Montana	14,540
COLORADO	
Iles dome	2,130
Moffat	350
Price	570
Miscellaneous	800
Total Colorado	3,850
NEW MEXICO	
Cooper	4,340
Eaves	800
Eunice	22,330
Hardy	1,870
Hobbs	12,500
Jal	1,060
Langlie	3,430
Lynch	510
Lynn	700
Mattix	2,490
Monument	23,270
Penrose	4,760
Skelly	1,580
South Eunice	2,720
Vacuum	1,850
Artesia-Maljamar	5,440
Miscellaneous	1,180
Total New Mexico	90,890
Total Rocky Mountain region	163,130

New or Improved Equipment

J&L Wire Rope Division Plant Ready to Begin Operation

Completion of a modern wire rope plant at Muncy, Lycoming County Pennsylvania, as an additional unit of its expansion and development program, is announced by the Jones & Laughlin Steel Corp., Pittsburgh, Pa. This new plant, to be known as the Gilmore Wire Rope Division of the Jones & Laughlin Steel Corp., will begin operation the first week of July, according to plans of the company. It marks the entry of the corporation into a new line of finished products, including wire rope for oil-country use, for general construction purposes and for industrial application.

ROBERT GILMORE

Fabrication and sale of the products of the new plant are to be under the direction of Robert Gilmore, general manager, whose offices will be in Muncy. His entire business experience has been in the wire rope field.

New Wilson & Bennett Plant

A new steel drum manufacturing plant has been established at Port Arthur, Tex., by Wilson & Bennett Manufacturing Co. This plant, at Washington and West Eleventh Streets, is expected to be in operation soon, equipped for making all standard sizes of steel drums and barrels, providing a steel container service for refiners and other manufacturers throughout the Southwest.

Bulletins, Booklets and Other Literature for the Trade

Commercial and oil-field Spencer trailers "that pull easier" are the subject of an unusually attractive looseleaf booklet obtainable from Spencer Trailer Co., Augusta, Kans. Among important Spencer developments are enumerated the gravity-cushioned fifth wheel, true beam axle, machined-in camber, rubber-bushed radius rods, key-welded trailer frames, and universal pin-type hitch.

A bulletin giving description and data on the high physical properties of Rycrome and Nikrome "M," two heat-treated alloy steels used for a great variety of heavy-duty applications, may be obtained from Joseph T. Ryerson & Son, Inc., Sixteenth and Rockwell Streets, Chicago.

Foxboro Co., maker of industrial precision instruments and controllers, has moved its Dallas, Tex., office and branch factory to 1710 North Akard Street. The entire building will be occupied by Foxboro.

A 12-page bulletin describing the new Jenkins U-bolt gate-valve, which has a "bonnet-saver bushing," is offered by Jenkins Bros., Inc., 376 Spring Street, N. W., Atlanta, Ga.

Arc welding of piping for operation at pressures up to 1,500 pounds per square inch and temperatures up to 1,000° F. is covered in a 12-page bulletin issued by the Metal & Thermit Corp., 120 Broadway, New York.

Shafer Supersealed roller-bearing pillow-blocks are the subject of a bulletin offered by Shafer Bearing Co., 35 East Wacker Drive, Chicago.

Chains for oil-well service are described and illustrated in a bulletin which the Jeffrey Manufacturing Co., Columbus, Ohio, is mailing on application.

The Rex oil-well chain data book, obtainable from Chain Belt Co., 1600 West Bruce Street, Milwaukee, Wis., tells the history of these chains and describes the care which should be accorded all oil-field chains.

A new catalog illustrating and describing the Model 94 force-feed automatic lubricators for engines, pumps, compressors, and other oil-industry equipment is available from Manzel Bros. Co., 309 Babcock Street, Buffalo, N. Y.

Typical installations of Brodie meters in the oil industry are shown in an illustrated bulletin which Ralph N. Brodie Co., Inc., Sixty-first and Lowell Streets, Oakland, Calif., is sending on request.

Cast-Iron Pipe Demonstrations for Many Parts of Country

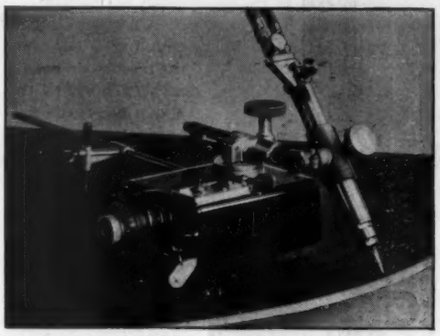
Completion of what is believed to be the first traveling demonstration unit of its kind in the cast-iron pipe industry is announced by the American Cast Iron Pipe Co., of Birmingham, Ala.

The company points out that marked advances in the art of manufacturing cast-iron pipe and in the design of pipe joints have been made in recent years, and the Acipco display truck is especially built for showing in various areas the physical properties of Mono-Cast centrifugal pipe. The truck carries samples of this product, various joints, fittings and other specialties, together with descriptive literature and illustrations of installations. The demonstrations lay emphasis on special joints developed to meet the several demands.

Present plans are for the truck demonstrations to start with a 60-day tour of Oklahoma, Kansas, Nebraska, Missouri and Iowa, followed by 30 days in Minnesota and Wisconsin; 60 in Michigan, Ohio, Indiana, and Illinois; 70 in Texas, Arkansas and Louisiana; and 80 in other southern territory. The truck will visit engineering colleges to show students various applications of cast-iron pipe. Engineering clubs and other groups wishing to arrange special meetings are invited to write to the company in Birmingham.

Light-Weight Cutting Machine Added to Airco Products Line

Air Reduction Sales Co., 60 East Forty-second Street, New York, has added to its line of gas-cutting machines, the new light-weight No. 10 Radiagraph. This machine will cut bevels up to 45 degrees and needs no extra attachment for this type of work. Square edges and straight lines of any length desired may be produced and complete circles up to 85 inches diameter can be cut, using the radius rod and center point. Weighing only 41 pounds, the Radiagraph is readily portable and can be carried from job to job.



Included with the machine proper are the following, which comprise the standard equipment: Torch adjusting unit, standard Airco-DB machine cutting torch, torch wrench, 3-conductor lead cord 25 feet long, radius rod and center point, one length of track, one cutting tip as selected.

The No. 10 Radiagraph embodies these features: (1) A cutting speed of 4 to 60 inches per minute with modern indexed speed control for quick setting up and operation; (2) free wheeling for easy lining up to the work; (3) simplified horizontal and vertical torch adjustment; (4) all controls positioned for maximum convenience; (5) all working parts completely enclosed; (6) operation on 110 volt AC or DC.

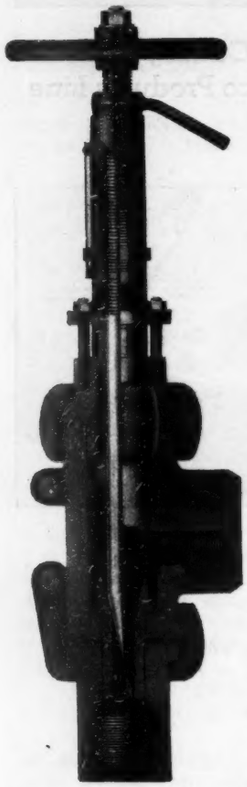
Hydrostatic Scavenger Brings Lost Junk to the Surface

Following exhaustive tests in wells 8,000 feet or more deep, for recovery of junk, the new Shull hydrostatic scavenger is being introduced by Shull Perforating Co., Inc., 2750 Cherry Avenue, Long Beach, Calif. Utilizing the differential of pressures at the surface and at the bottom of the well, the tool is said to pick up all junk, including shapes, according to engineers of the company. The scavenger is coupled to the lower section of the drillpipe after the drill-collar is removed. After being rotated to the bottom, the shoe scrapes and gathers junk to the center.

Weight of the string is sufficient to hold the scavenger stationary. A half-turn on bottom turns the valve threads and opens the valve, permitting the junk to be forced up past hinged retainers into the junk basket. The perforated tapered seat around the valve provides positive action and permits draining so that the string is brought up dry. The Shull hydrostatic scavenger is available in all sizes for rental in California, and for sale elsewhere.

Principle of Unibolt Coupling Is Applied to Adjustable Choke

Thornhill-Craver Co., Houston, Tex., manufacturer of Unibolt couplings and fittings, announces an adjustable choke which is said to provide greater precision in the control of flow by accurately centering the needle in the orifice and by providing a more sensitive indicator mechanism.



A regular Unibolt coupling connects the bonnet, or needle assembly, to the choke body, the patented tapered interlocking-shelf principle applying equal pressure at all points and holding the needle assembly rigidly in position. The yoke member is piloted into the choke body to serve as a guide for the needle, centering it in the orifice.

According to the manufacturer, all parts are machined to michrometer precision further to assure centering of the needle. A special threading arrangement in the indicator mechanism results in a 2-to-1 ratio of movement between the needle and indicator-arm, the indicator-arm traveling twice as far on the indicator-plate as the needle moves in or out of the orifice. Thus, a coarser, more accurate reading is provided.

The coupling between the bonnet and the body expedites changing of flow-beans. By simply releasing the one bolt, the entire needle assembly may be removed. A blanking plug replaces the bonnet if it is desired to convert the adjustable choke to a positive type. And because all parts are interchangeable, the bonnet, or needle assembly, may then be installed in a choke body to form another adjustable choke.

A regular Unibolt coupling is provided also between the choke body and the flow nipple, obviating the need for a coupling in the flow line. The choke is tested to 6,000 pounds pressure.

Johns-Manville Brake-Lining Is Built for Heavy-Duty Work

Johns-Manville, 22 East Fortieth Street, New York, announces development of a new type of woven rotary lining in which cabled yarns are

used. These asbestos "cables" are woven into a compact mass, impregnated to increase heat-resistance and frictional qualities, and then compressed. The result is an unusually efficient and durable lining for heavy-duty work.

The new lining, designated as Style No. 420, is a product of years of research and practical testing of brakes on rotary drawworks used in drilling oil wells. It is applicable to wells of all depths, and is particularly recommended for deep drilling. A principal feature of the material is unusually even feed-off, giving better control of drilling. The lining also is designed so that even at the extreme temperatures caused by heavy loads, braking efficiency remains high.

Tests are said to have demonstrated that the lining has long life and that it reduces the scoring of drums, resulting in more efficient drum service.

Novo Offers New Power Pump for General Oil-Field Use

Novo Engine Co., Lansing, Mich., is announcing a new power pump for general oil-field serv-

ice, including handling of oil, water, and slush. This pump is said by the manufacturer to be outstanding in its smooth, compact design, quietness in running, and high efficiency. It is fully enclosed and roller-bearing equipped. It has interchangeable liners for changing capacities, also interchangeable valve service, pistons, piston-rods, and liners for slush, oil, or water. The pinion shaft is extended through both sides of the power end, allowing power to be applied from either side. A neat cover is in place over the shaft end not in use. These pumps are sold and serviced by all National Supply Co. stores.

Kem Metal Protective Paint Is Sherwin-Williams Offering

An advancement of importance is reported by Sherwin-Williams Co., Cleveland, Ohio, in its S-W Kem metal protective paints, include Kem-Kromik metal primer, Kem-Elastic metal protective paints and Kem red lead (primer).

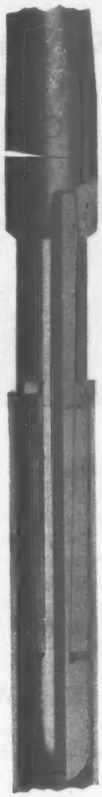
The distinguishing feature in formulating these new products is said to be their chemically evolved (synthetic) S-W Kem liquid. The advantages demonstrated under standard tests by the paints utilizing this Kem liquid are reported as follows: (1) More complete exclusion of water and gases from the metal protected; (2) greater durability; (3) improved appearance, maintained in service.

Other practical advantages are said to include faster drying; protection of freshly applied paint against the hazards of weather, and adding speed to the job, with safety; easy brushing, for the better covering of surfaces difficult to brush; the fact that weathering does not roughen the film, but leaves an excellent surface for repainting at the proper time.

In Kem-Kromik, the inhibitive value of the balanced lead chromate formulation of the company's Kromik metal primer has been retained. Kem red lead is offered as a superior primer for those who prefer this type of paint. S-W G&G primer is provided for the priming of galvanized iron and other zinc-coated metals. Kem-Elastic is specified as the finish coat over each of these primers.

Redrilling Below Casing-Seat Is Allowed by This Whipstock

Kinzbach Tool Co., Inc., Houston, Tex., is now in full production on the new Type L whipstock developed to permit the deflecting of tools from a point below the casing-shoe after cutting out a section of liner. This stage of redrilling has commonly entailed difficulty when attempted without the aid of a guide for the tools and often required the use of a cement plug at this point. Without the use of a cement plug and the conventional deflecting tools, the direction of the new hole cannot be controlled at its origin.



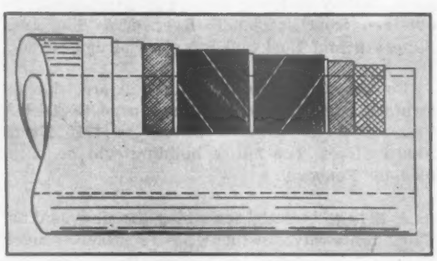
The Kinzbach whipstock is described as simplifying the job by being anchored in the liner stub. The tool consists mainly of a spear arrangement with positive-acting slips which grip the inner wall of the liner after they are in position to make the contact, and the concave section is hinged so that the top is forced back against the wall of the hole as the assembly is set.

This whipstock is run into the hole by means of a shearing stud attaching it to the drill pipe. When the spear enters the liner the slips, which operate independently, are automatically released and forced outwardly to contact the liner. Additional drill pipe weight seats the slips in the liner and shears the stud, thus releasing the drill pipe from the whipstock. At the same time the hinge is forced back so that the top of the concave lies against the wall of the hole. By orienting the whipstock into the hole, the direction of the redrilled hole is accurately controlled.

Hose for Hard Rotary Service Is Introduced by Goodyear

An improved rotary hose, Style 3154, is announced by Goodyear Tire & Rubber Co. Among improvements of the new product is a third bead wire extending back from each end approximately 5 feet and built in by a new and exclusive Goodyear process. The hose, designed for service within the 1,500-pound working-pressure range is of 7,000-pound burst construction, will not readily crush or kink, but at the same time is an unusually flexible high-pressure hose.

Style 3154 has an especially tough compounded rubber tube, and the body structure consists of multiple plies of extra-heavy cotton duck and two distinct layers of bead wire spiraled in opposite directions. Each layer of wire is embedded in rubber and carefully insulated from the other by high-



grade rubber and duck. The cover is of rubber compounded to give maximum resistance to abrasion. These features, combined with the third bead-wire feature at the ends, are said to provide an exceptionally durable hose for rough rotary service.

"Resistoflex" Light, Tough and Insoluble in Gasoline, Oils

Resistoflex Corp., 370 Lexington Avenue, New York, announces completion of facilities at its Dover, N. J., plant for the manufacture of "Resistoflex" PVA tubing up to and including one-half inch inside diameter. Larger sizes will be added. "Resistoflex" is the trade name employed in the American production of a flexible synthetic resin—

basically, polyvinyl alcohol—which is inert to gasoline, oils, and organic solvents; retains its flexibility throughout a wide temperature range, and which has been manufactured, tested, and sold on a commercial scale during the past several years by foreign corporations with which Resistoflex Corp. is indirectly affiliated.

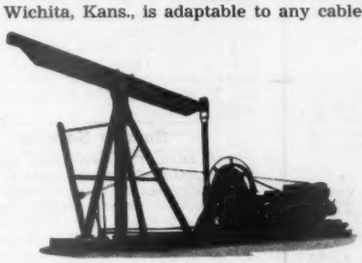
This patented tubing is being used abroad in many industrial applications, chiefly in the fuel and brake lines and lubrication systems of automotive equipment, diesel engines and aircraft; in the conveying of solvents and mineral and vegetable oils in the chemical and process industries; in hydraulic lines; and in fuel- and oil-handling equipment.

The material, it is claimed, is the only commercially known substance that is completely insoluble in gasoline, oil, the aliphatic compounds and aromatic series of hydrocarbons—ethers, esters, alcohols.

Physical characteristics of "Resistoflex" include extreme lightness, great toughness, remarkable pressure-resistance; good elasticity, and a flexibility so marked that "Resistoflex" tubing literally may be tied in knots. It is highly efficient in absorbing vibration. Under normal conditions of use over a long period, it shows no trace of wear, fatigue or deterioration. At present "Resistoflex" is offered in the form of tubing in standard sizes, although gaskets, washers, packing, diaphragms, and sheet material are scheduled for production.

Drilling Unit Is Adapted for Use as Temporary Pumping Unit

The Bridgeport portable cable-tool drilling unit manufactured by Bridgeport Manufacturing Co., Wichita, Kans., is adaptable to any cable-tool



drilling, pumping, clean-out or reworking job. It is designed for ready portability and for fast and simple installation.

The unit is sufficiently flexible and powerful to drill from top to bottom of 5,000-foot holes. When used to drill in after the rotary, each of the units which make up the complete drilling rig is easily skidded into place on the derrick floor. When the well is brought in, the drilling unit serves as the pumping unit for taking the initial production tests, and until the permanent pumping unit is installed.

The complete rig consists of a portable rig front mounted as an operating unit on a heavy wide-flanged structural steel base. The chain-driven sand-reel is mounted back of the tug on the main base. The power unit consists of a Bridgeport gearless reversing countershaft clutch driven by an internal combustion engine. Power is transmitted from the engine to the reverse clutch through texrope V-belts. Both engine and clutch are mounted as a unit on a substantial skid base.

Here and There With Men Who Manufacture Equipment

Fairbanks, Morse & Co. has appointed A. C. Howard general manager of the company's Beloit, Wis., plant, of which he had been assistant general manager six years.

L. D. Armstrong, secretary-treasurer, and H. A. Wienecke, Jr., sales engineer of the Gaso Pump & Burner Manufacturing Co., Tulsa, are making a tour of the Illinois and Indiana oil fields inspecting the Gaso equipment in service in that territory.

Geological Scientific Service Co., Fort Worth, Tex., which has pioneered the Smith method of soil analysis geophysics, has opened an office at 703 Second National Bank Building, Houston, Tex., in charge of F. B. Putnam.

J. J. B. Rutherford, formerly of the United States Steel Corp.'s research laboratory in Kearny, N. J., has joined the metallurgical staff of the Babcock & Wilcox Tube Co. as research metallurgist.

Murphy Diesel Co., Ltd., of Milwaukee, Wis., has appointed William Mohler western district manager. Mr. Mohler has had 20 years' experience in the gasoline and diesel engine fields, covering both building and sales engineering. His office will be at 255 Tenth Street, San Francisco.

Increased Visibility Is Feature of New Brodimatic Counter

The Brodimatic direct-reading counter, introduced by Ralph N. Brodie Co., 945 Sixty-first Street, Oakland, Calif., in addition to giving simple, direct meter readings, in measuring gasoline and fuel oil, has three times the visibility of the regular 10-inch dial. This departure from the commonly used counter types is made possible by an ingenious new mechanism. According to the manufacturer the numerals are operated by "snap" action, which takes the place of numeral wheels and dial hands.

To obtain error-proof vision for taking accurate direct readings at a distance, use is made of extra-large bright-yellow numerals on a black face. These numerals snap fully in or out of their windows so that the readings are made without calculation. Stocks of Brodimatic equipped meters and Quantrols are now ready at the factory and at the company's district branches.

Roadbuilding With Caterpillar

A 182-page illustrated book, entitled "Roads, Canals and Embankments With Caterpillar Equipment," announced by Caterpillar Tractor Co., Peoria, Ill., constitutes a fairly thorough guide concerning roadbuilding methods and equipment. It is recommended particularly for the export field, where contractors and engineers are desirous of studying American methods. According to the company, a limited edition only was printed, and the 50 cents charged for it just covers the cost of printing and mailing.

PORTABLE SEISMOGRAPH INSTRUMENTS OFF FOR JAVA

Seismograph Service Corp., Tulsa, has shipped the seismograph equipment here illustrated to Java to do oil exploration work in the East Indies. The equipment shown is a complete seismic reflection unit and a complete refraction unit. This portable seismograph has all the features of the most modern units used in this country. Careful selection of parts and special treatment for moisture-proofing assure proper functioning in all climates.

The units were built by Engineering Laboratories, Inc., Tulsa, manufacturing affiliate of Seismograph. This firm's seismograph units are now being operated by field crews in North America, South America, Europe, Asia, West Indies, and the East Indies.

CLASSIFIED ADVERTISING

Patent Attorneys

JACK A. SCHLEY
PATENT LAWYER
Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

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PATENTS obtained — inventions developed — working drawings — engineering advice. Mid-Continent Engineering Company, E. H. Waldrop, Shawnee, Okla

For Sale—Maps

1938 REVISED EDITION
MAP of State of Texas, Eastern N. M., parts of Southern Okla., SW Ark. and La., shows Oil and Gas Fields in color, Counties, County Seats, elevations, coordinated alphabetical index of counties and fields. Price $1.00 postpaid

Write for descriptive folder of Oilfield and County Ownership Maps.
ZINGERY OIL MAP COMPANY
Fair Building Fort Worth

Leases and Drilling Blocks

SECURITY ABSTRACT COMPANY
El Dorado, Union County, Arkansas, Magnolia, Columbia County, Arkansas. Fee, Lease and Mineral ownership on short notice. Ownership maps.

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up. Owners—Address Attorney, Box 1122, Little Rock, Ark

I OWN 3,000 acres free in N. Pittsburg and Atoka Cos., Okla. 40 to 1000 A. tracts. No trades. Cash sale, lease or royalty, $5 to $25 per A. Townsite on 2 RRs. near production. J. E. Cavanagh, Baker, Ore.

WILL TRADE LEASES
AROUND ROOKS COUNTY
KANSAS WILDCAT
For leases of similar value near other assured test wells. Drilling to commence by July 15. Good geology, responsible company and contractor.
P. O. Box 494, Tulsa, Oklahoma.

LEASES—ROYALTIES near Ordovican wildcat semi-proven offers reasonable chance play for quick money. E. CROFT, PROCTOR, TEXAS.

DRILLING well, semi-shallow, Kansas, needs money for deepening 300 feet. New backing can about write own terms. Box 313, Hoisington, Kansas.

WHY PAY big prices for Oil Leases when land in fee, all royalty, can be bought for $5. Investigate. J. N. SWANSON, Sayre, Oklahoma.

50,000 A. in and near Ill. production area. Consider drilling deal. Illinois Minerals Co., Cairo, Illinois.

SOUTH Louisiana lease blocks and royalties. Two blocks near new Bancroft Field, Beauregard Parish. John Derryberry, DeRidder, Louisiana.

Leases and Drilling Blocks

SEVERAL surface mapped oil structures, edge Permian Basin. You check and deed me land, small mineral rights. Address Box J-452, The Oil and Gas Journal, Tulsa, Oklahoma.

DEALERS and SALESMEN
We invite your inquiries for our offering on producing and non-producing oil Royalties.
We are also dealing extensively in oil and gas Leases principally in New Mexico. Write for details.
RUBUSH AND COMPANY
1307 Pacific Ave., Dallas, Texas

1800 ACRE block in Massillon and Leech Twp., Wayne Co., Ill. Any reasonable offer accepted. Other close-in royalty and leases. I. E. Theobold, Flora, Illinois.

OUR lists will help you turn your oil or royalty deal. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Okla.

Manufacturer

Established Manufacturer of Oil Field Equipment with large plant and ten (10) stores in Mid-Continent and California Oil Fields desires to manufacture patented items for use in pipe line pumping, production pumping, or drilling service. Address Box J-403, The Oil and Gas Journal, Tulsa, Okla.

Mailing Lists

Royalty Lists. Unit Holders Lists. Oil Industry Mailing Lists covering every branch. Oil Industry Mailing List Co., Tulsa Loan Building, Tulsa, Oklahoma.

Help Wanted

WILL BUY list production company personnel and drilling contractors in Illinois, Michigan and Ohio. P. O. Box 2603, Tulsa.

Situations Wanted

PETROLEUM ENGINEER, 13 years with same major oil company, 5 years California, 8 years Java, Borneo, Venezuela, wide practical experience and theoretical knowledge Drilling, Production, Geology, B.Sc. London University, A.R.S.M. Royal School of Mines, London, Oil Technology. Age 36, married, English. Resigning present position Venezuela middle August, offers services. Fully capable of undertaking complete responsibility for oilfield development. Address Box J-463, The Oil and Gas Journal, Tulsa, Okla.

Situations Wanted

ACCT. OFF. MGR., age 37, with large refiner for ten years. Desires position anywhere in any capacity. Knowledge refining, producing, tankcar wholesale and station marketing. References on request. Address Box J-430, The Oil and Gas Journal, Tulsa, Oklahoma.

PRODUCTION Foreman. Age 38. At present foreman 35,000 bbls. 20 years' experience. Multiple stage Oil and Gas separation, Oil Metering, latest methods of Gas-lift, deep well pumping, bottom hole pressure study. Logical reason for desiring change. Present employer as reference. Address Box J-541, The Oil and Gas Journal, Tulsa, Oklahoma.

BOOKKEEPER - ACCOUNTANT, age 22, University grad., studying law at night school, year with company operating 50 leases. Capable handling all office detail. Will go anywhere. Leo Gottlieb, 1310 S. Main, Tulsa, Oklahoma.

ACCOUNTANT, fourteen years' experience in oil and oil well supplies. Will go anywhere. Address Box J-464, The Oil and Gas Journal, Tulsa, Oklahoma.

EVERY ORGANIZATION CAN USE A GOOD MAN. HERE'S YOUR ANSWER: A young Civil Engineer wishes to enter the petroleum industry in a sales engineering or technical capacity. He has had 8 years' practical experience on surveys, construction, valuation, prospecting, mining, quantity surveying, estimating, etc. Possesses ability, tact, ambition. Is resourceful, diplomatic and dependable. Available at once. Best references. Will travel or locate anywhere. Address Box J-465, The Oil and Gas Journal, Tulsa, Oklahoma.

ATTY.-Credit Man—12 yrs.' experience in credits, liquidation, reorganization of business concerns. Practice in State and Fed. Courts. Have excellent library. Past 3 yrs. employed by Producing Company in title, statistical and tax work. Available on short notice. Address Box J-460, The Oil and Gas Journal, Tulsa, Oklahoma.

GRADUATE engineer, 20 yrs.' exp. Oil and Gas, 3 yrs. with state regulatory comm. wants pos. with prod. co. Now employed, desires change. Address Box J-461, The Oil and Gas Journal, Tulsa, Oklahoma.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest cheapest, more liberal. Free forms Colonial Charter Co., Wilmington, Del.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

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OIL ROYALTIES
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GRIMES ROYALTY CO.
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ROYALTIES—ADEQUATE RESERVES
G. D. TERRIEN
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PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
703 Kennedy Bldg., Tulsa, Okla.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Hobbs, New Mexico.

Ranches and Farm Lands

BEAUTIFUL COUNTRY HOME
100 Acres, close to Dallas, about 50 acres landscaped, 5 acre lake, beautifully shrubbed at a cost of $27,000.00; balance in cultivation. Owners lodge and keepers quarters all modern. Barns, out houses, deep artesian well; 6 saddle horses, cows, sheep, etc. This is really a dream place and has taken several years to develop. For further information call or write Max Ploeger, Jr., Chas. E. Turner Co., Inc., 111 Murphy Street, Phone 7-8561, Dallas, Texas.

MEXICO CATTLE RANCH: 100,000 acres, fenced, ample water, no ticks, 65% vast open flat valley, solid turf grama grass, flanked with majestic mountains. Valley elevation 5,000 feet, cool summer resort climate. All American neighbors. Bear, deer, antelope, puma, coyotes, turkey, quail. 2,200 high grade Hereford cows, 2,000 calves, 100 bulls, 100 horses. Net annual income $25,000; operating cost $7,000. Price with cattle $125,000; half cash. World's best cattle land; equals $10 to $20 Texas ranches. Low taxes, cheap labor, no dipping, no winter feeding. M. E. Bogle, 105 Routt St., San Antonio, Texas.

Survey Service

THE DOWSING METHOD for locating oil structures, faults, and treacherous areas, operates on the principal of vibratory response to emanations from petroliferous sub-strata. Our WATSON No. 2, pioneer well of the Wilmington, Calif., field was located by this method and all my personally owned production. 15 years' experience. This physico method may solve all your structural difficulties. Geo. Miller, 1548 Post Avenue, Torrance, California. Phone 983.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*
7 Lines	*$2.45*	*$4.20*	*$5.95*	*$7.70*
8 Lines	*2.80*	*4.80*	*6.80*	*8.80*
9 Lines	*3.15*	*5.40*	*7.65*	*9.90*
10 Lines	*3.50*	*6.00*	*8.50*	*11.00*

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

CLASSIFIED ADVERTISING

For Sale—Equipment **For Sale—Equipment** **For Sale—Equipment**

BOILERS — PIPE — REFINERY EQUIPMENT

6—150 H.P. Brownell, Horizontal, Return Firetube Boilers. Price $600.00 each, F.O.B. cars, Tulsa, Oklahoma.
2—350 H.P. Babcock-Wilcox, Water Tube Boilers, Sterling type 200-lb. pressure, complete with boiler feed water pumps, fuel oil pumps and boiler feed water heater, price $6,000.00 for both, F.O.B. cars, Guthrie, Oklahoma.
10,000 ft.—15 1/2" Surface casing, 1/4" wall thickness, 30' joints, collar on one end, located at
Tulsa, Oklahoma—Warehouse
COMPLETE STOCK STORAGE TANKS & REFINERY EQUIPMENT

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba
Riverview at Second,
Kansas City, Kan.

J. O. Isaacks
Hays, Kansas

Robt. W. Duden
2100 S. Union,
Tulsa, Okla.

FOR SALE
7 SHARPLES SUPER-CENTRIFUGES, first-class condition, royalties paid up and with replacement rights. Complete WAX PLANT — CARBONDALE REFRIGERATORS COMPRESSORS—PUMPS—TANKS —FILTERS—etc.
OIL REFINERY EQUIPMENT CO.
CLARENDON, PA.
(Liquidating Tiona Refining Co.)

TANK CARS
33 8,000 gals.
61 10,000 gals.
Class 2. Built 1915, 16 & 17
Cast Steel Truck Sides
Very good condition
Tank Car Tanks, too.
IRON & STEEL PRODUCTS, Inc.
Chicago (Hegewisch Sta.), Ill.

FOR SALE: From Oklahoma City warehouse 10—Bovaird split slip-type tubing elevators for 2" and 2½" tubing. I.T.I.O., Bartlesville, Oklahoma.

WELDERS BARGAINS—Demonstrators, reconditioned, new and used. 30 Days Trial and terms if desired. Write for list. Hobart Welder Exchange, Box OG-1, Troy, Ohio.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor, Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio

FOR SALE
A COMPLETE REFINERY

Also Tanks from 500 to 10,000 bbls.

Also all miscellaneous refinery equipment, machinery and fittings.

REFINERIES SALVAGE COMPANY
DRAWER O, ARP, TEXAS.
Phone: 9102 Overton, Texas.

125,000 feet 10¾" O D
Forty Pound Used Wrought Iron Line Pipe With Threads and Couplings. Cleaned. Located Kokomo, Indiana District.
STANDARD OIL FIELD SUPPLY COMPANY
P. O. Box 863 Houston, Texas.

HAVE several six to ten thousand feet swabbing and tubing machines for sale. Address Box J-420, The Oil and Gas Journal, Tulsa, Oklahoma.

DRILLING DERRICK FOR SALE
122 foot Emsco galvanized drilling derrick, unreinforced capacity 437,000 pounds for sale for $1250.00. Recently purchased for $1701.26. Has been used only for drilling two wells. Is located at Talco, Texas. D. L. Peavy, 2105 Tower Petroleum Bldg., Dallas, Texas.

WHOLESALE Bulk Lubricating Oil, Grease and Gasoline Plant. Equipped complete. 225,000 gal. storage. Box 284, Tulsa, Oklahoma.

The Classified Section of The Oil and Gas Journal, for over 30 years the market place of the oil industry.
Reading this section every week can become a profitable habit.—Cultivate it.
Classified Department
THE OIL AND GAS JOURNAL

Equipment Wanted

WANTED — Gasoline powered rotary drilling rig, capable of going 4,000 feet. Will pay cash for good bargain. Give full description. W. P. Luse, Magnolia Building, Dallas, Texas.

WANTED: Used Waukesha standard ASTM-CFR Octane testing unit. FELDMAN PETROLEUM CO., 2250 So. Ashland Ave., Chicago, Illinois.

WANTED—Used Thrift Hydraulic Pipe Pulling Outfit. State price and condition. Address Box J-462, The Oil and Gas Journal, Tulsa, Oklahoma.

Business Opportunities

WILL GIVE substantial percentage of profits from my Patented Fishing Tool, for financing the same. None other like it. Bill Shannon, 428 Bankers Mortg. Bldg., Houston, Texas.

WILL RENT to responsible parties anywhere, unitized modern complete steam driven rotary with steel derrick, capable drilling 5500 feet or take clear interest in proven property to be drilled up with rig or may take some cash and some acreage on financed wildcat of merit for use of rig. Burnham Drilling Co., Polley Hotel, Center, Texas.

LARGE, financially-responsible midwest oil company will make volume contract on high octane, non-leaded gasoline over a period of time, thus enabling interested refiner to proceed with security, improve equipment, reduce sales force, eliminate credit hazards and re-open dormant plants. Address Box J-453, The Oil and Gas Journal, Tulsa, Oklahoma.

THERE will be a big play in Northwest Red River County 30 or 60 days, if interested write me. W. H. Upton, Paris, Texas.

Legal Blanks

Since 1908 Burkhart's legal forms have served the Oil Industry—Free catalog & samples. Burkhart Printing & Sta. Co., 115 So. Cincinnati, Tulsa, Oklahoma.

Financing

CAPITAL SEEKERS—Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

INQUIRIES SOLICITED FROM CORPORATIONS INTERESTED IN RAISING CAPITAL THROUGH THE MARKETING OF CORPORATE SECURITIES.
BROWN HARTWELL COMPANY
110 EAST 42 ST., NEW YORK

Plants For Sale

FOR SALE
Oil Refinery STOCK and BARREL HOUSE (48—10,000 gal. tanks) COMPOUNDING and FILTER HOUSE, fully equipped, with large capacity field storage, RR Siding, etc. Ideally suited for distributors and jobbers for barreling and packaging of lubricating oil.
OIL REFINERY EQUIPMENT CO.
CLARENDON, PA.
(Liquidating Tiona Refining Co.)

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.
Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	$.70	$.70	$.70	...	...	$.70	
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.78	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.88	1.01	.98	.90	.83	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	...
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	...
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	...
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	...
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	...
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	$1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	...
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	...
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.25	...	1.29	...	...	...	...	...	1.27	...	...
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.29	...	1.33	...	...	...	...	...	1.31	...	...
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.32	...	1.37	...	...	...	...	...	1.35	...	...
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Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 76 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

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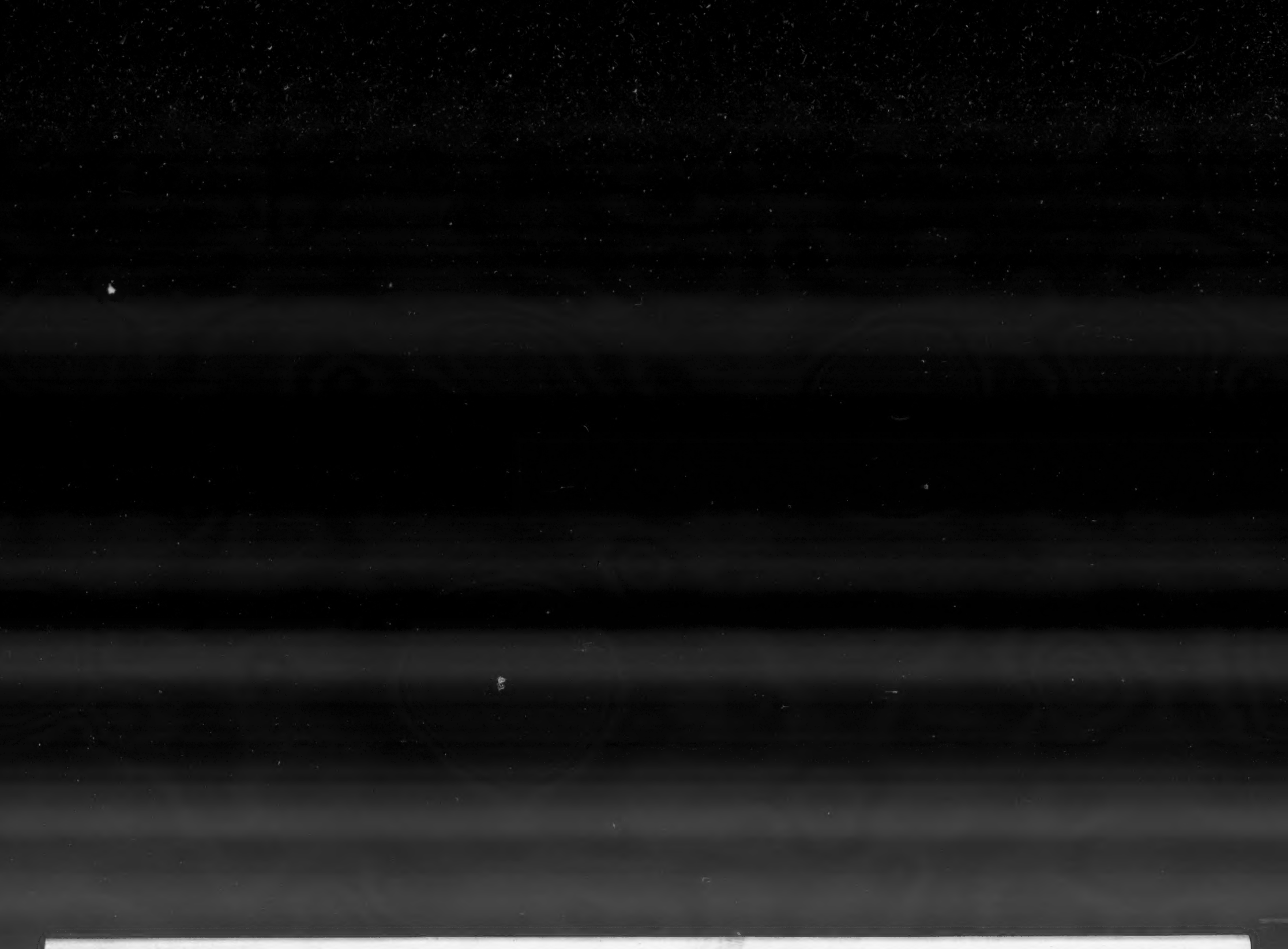
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